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The Extent of Availability and Utilization of ICT Facilities by Undergraduate Students for Research in Academic Libraries: A Case Study of Rhema University, Aba.

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THE EXTENT OF AVAILABILITY AND UTILIZATION OF ICT FACILITIES BY UNDERGRADUATE STUDENTS FOR RESEARCH IN ACADEMIC LIBRARIES: A CASE STUDY OF RHEMA UNIVERSITY, ABA.

BY

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ABSTRACT

The purpose of the study was to investigate the availability and utilization of library's ICT facilities by undergraduates of Rhema university, Aba. The research design used was a descriptive survey. A purposive sampling technique was used in carrying out the work. A total number of two hundred (200) respondents were used for the study. The instrument for data collection was a questionnaire. Two hundred (200) copies of the questionnaire were distributed to the undergraduate students in the university. One hundred and ninety-four (194) were returned representing 96.5% return rate. Data collected were analyzed using descriptive statistics of mean scores and standard deviation with the use of Statistical Package for Social Sciences (SPSS) version 23. The study found that the library examined makes available varieties of ICT facilities and showed a strongly agreement response on the users' level of awareness by the respondents. The findings of the study also revealed that there are some benefits attached to the use of these ICT facilities in research such as reduction in time spent on research thereby speeding up research, improvement in communication and resource sharing among researchers, provision of access to a wide range of information, efficient organization and classification of information and reduction in distance barrier in carrying out research. Consequently, the study also found out that the problems militating against the use of available electronic resources include; unawareness of the availability of related e-resources to their discipline/course of study, inadequate guide on how to use the resources, poor internet connection, inadequate ICT facilities, epileptic power supply, unconducive atmosphere, frequent breakdown of ICT facilities, virus attack, as well as inadequate trained personnel. The recommendations made to improve availability and use of electronic resources by undergraduates include: sustained public relations programme, purchase and building of power stations, increase in internet connectivity and bandwidth, provision of well-ventilated reading rooms, user education, training and provision of well-trained manpower were suggested for action.

Keywords: *ICT facilities, Availability, Utilization, Research, Academic Library, Undergraduates, Research*

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Traditionally, a library is simply defined as an organized collection of information resources which is aimed at meeting the information needs of users. The library is any organized collection of books, manuscripts, journals and other sources of recorded information to meet the information, research and educational needs of the users (Alam, 2011). It is primarily set up to acquire, organize, store and make accessible to users within the quickest possible time all forms of information materials which they require (Nwalo, 2012). The vital activities of libraries comprise collection development, reference services management, document delivery service, access to organized collections held by the library and assist users in information search and retrieval (Husain & Nazim, 2015).

There are different types of libraries but academic libraries are libraries established in tertiary institutions to serve primarily the students and staff of that university and other institutions. The main function of academic libraries is to provide educational and information resources to support students research work and staff of the institution. Therefore, academic library is the hub on which teaching, learning and research activities revolves in any university community. In addition, Anasi (2015) asserted that academic libraries are responsible for providing access to scholarly information necessary for the achievement of the function of developing human resources.

Academic libraries also play a major role in making the university achieve its objectives of teaching, research, and community service through the provision of information resources for undergraduate instructions as well as their research needs. Undergraduates are students in a university or college who have not received a first and especially a bachelor's degree. To add more light to the definition of undergraduates, Smirl (2016) defined undergraduates as a set of

individuals in a higher educational institution that have not been conferred a bachelor's degree. These undergraduates make up the greatest number of populations in the tertiary institution. Presently undergraduates are technological savvy. They are always impatient in terms of traditional operations and services of the academic libraries to satisfy their research needs.

Research which is defined as the act of making a careful study about a particular problem with the purpose of establishing a new knowledge. A research is a process of systematic inquiry that entails collection of data, documentation of critical information, analysis and interpretation of that data in accordance with suitable methodologies (Reddy, 2010). Drawing from these definitions, it shows that research is a very intricate concept and therefore requires a lot of information resources for its achievement. Researches in the various fields of science, education, arts and social sciences are imperative for the development of any nation and the world in general. In recognition of this fact, academic libraries spend huge amount of funds in the funding of research activities of undergraduate students. In a bid of their operations and services, they also purchase ICT facilities to enable this process.

According to Aina (2014), Information and Communication Technology (ICT) is an omnibus term that combines computer and telecommunication technology. It is concerned with the technology used in handling, acquiring, processing, storing and disseminating information. ICT comprise technology for broad casting information such as Internet, radio, television; and technology for communicating information through voice and sound or images, microphone, cameras, loudspeaker, telephone to cellular phones and other wide varieties of hardware such as PCs, servers, mainframes and networked storage (Deshumkh, 2013).

In libraries, ICT is being seen as modern technologies that are often utilized in information collection, organization, storage, retrieval and dissemination to individual users. Its application in libraries has widened the scope of librarianship as well as conferred new roles on librarians. Madu and Adeniran (2016) summarized the values of ICT to libraries and library users to

include better access to information, encouraging active library co-operation, encouraging resource sharing, efficient and effective delivery of service and providing access to online databases. ICT has revolutionised operations and information services.

The benefits of ICT in the achievement of quality services in academic libraries cannot then be over emphasized especially to undergraduate students. These ICT facilities play a very significant role to undergraduates in their research. Salako (2013) identifies this importance to be access to current information materials in one's area of research, speedy retrieval of the needed resources, accurate analysis and knowing to what extent a particular research has been done. As such, academic libraries in these contemporary times, painstakingly channel most of their funds in the acquisition of ICT facilities for the enhancement of their operations and services. However, it is worrisome and disappointing that most undergraduate students in Rhema University, Aba still do not utilize ICT facilities in their libraries for learning and research purposes.

1.2 Statement of the problem

ICT resources have become a necessity in modern day library system for information research. Academic libraries now have ICT facilities because of its immense benefits in the area of information provision and services to users. Academic libraries spend lot of funds in the purchase of ICT facilities such as computers, internet facilities, CD-ROMs, software packages, Electronic Information Resources (EBSCOHost, DOAJ, HINARI, etc.). However, it has been observed that most undergraduate students in Rhema University Aba, rarely utilize these ICT facilities provided by the library.

The implication of these unpleasant situations, is the production of poor research works by undergraduate students in Rhema University. Also, if huge amount of money is spent in the acquisition of these ICT facilities and they are not utilized by the students, it becomes financially wasteful having them in the library. It is based on this that the researcher decided to

find out the extent to which undergraduate students utilize ICT facilities in Rhema University Aba.

1.3 Purpose of the study

The study broadly focuses on the utilization of Information and Communication Technology facilities by undergraduate students for research. Specifically, the study intends to;

1. ascertain the extent of availability of ICT facilities in Rhema university, Aba.

2. determine the benefits of ICT facilities to research by undergraduates in Rhema university, Aba.

3. find out the extent to which these facilities are being utilized by undergraduates for research in Rhema university, Aba.

4. find out some of the problems that hinder undergraduates' in the utilization of ICT facilities for research in Rhema university, Aba.

5. determine strategies that could be adopted to enhance the proper utilization of the ICT facilities in Rhema university, Aba.

1.4 Research Questions

The following research questions were formulated to guide the study;

1. What are the ICT facilities available for undergraduate students for research in Rhema University?

2. What are the benefits of ICT facilities to undergraduate students for research in Rhema university?

3. to what extent do undergraduate students of Rhema university utilize the available ICT facilities for research?

4. What are the problems hindering the utilization of ICTs facilities for research by undergraduates in Rhema university?

5. What strategies could be applied to ensure the proper utilization of these ICT facilities for research by undergraduates in Rhema university Aba?

1.5 Significance of the study

This study will be significant to library administrators, library users as well as the body of literature.

Library Administrators: It is expected that at the end of this study, library administrators especially in Rhema University will significantly benefit from this study. The outcome of this study, will serve as an eyeopener to the institution's library administrators with regards to the extent the available ICT facilities is utilized by undergraduates for their research work.

Library Users: The research will enable undergraduate students, who are the users which the research focuses on, to be able to appreciate and utilize the ICT facilities provided by the library.

Researchers: The body of literature will serve as a stepping stone to researchers whose interest is on ICT and its utilization in academic libraries.

1.6 Scope of the study

The scope of the study covers the extent of utilization of ICT facilities for research by undergraduate students in academic libraries with focus on Rhema University, Aba. It covers the different forms of ICT orientated resources available to undergraduate students for research. The study also points out the types of ICT facilities available, usage skills and areas of operations and services carried out by the use of these facilities, the purpose and impact of using these facilities, problems that militates against the use of these resources and strategies to improve usage of these facilities in academic libraries.

CHAPTER 2

LITERATURE REVIEW

This chapter explored extensively the literature implication on availability and Utilization of information and communication technologies (ICTs). This chapter contains the review of relevant publications conducted to ascertain the gap in the knowledge which would be closed on completion of this study. The entire chapter is arranged under the following subheadings: Conceptual Framework, Review of Empirical Studies and Summary of the Reviewed Related Literature.

2.1 Conceptual Framework

In this part, efforts have been made to review published research reports related to this study. The excerpts from this exercise are presented under the following subheadings.

- Concept of academic libraries.

- Concept of research

- Concept of information and communication technology.

- Application and benefits of ICT facilities in academic libraries for undergraduate research.

- Utilization of ICT facilities by undergraduates for research.

- Factors hindering the utilization of ICT facilities for research.

- Strategies for enhancing the utilization of ICT facilities.

2.2 Review of Related Empirical Studies

2.3 Summary of Literature Review

2.1 CONCEPTUAL FRAMEWORK

2.1.1 Concept of Academic libraries

Academic library is a library that is established in a tertiary institution to serve the teaching and research needs of students and staff. According to Fabunmi (2012), Academic libraries are operationally defined as organized collections of information resources (print and non-print) which form an integral part of tertiary institution. Academic library, according to Akin (2010) is one which is established in institutions of higher learning to support learning, teaching and research activities of the university community. In the light of the ongoing definitions, Reitz (2014) added that an academic library is an integral part of a college, university or other institutions of postsecondary education, administered to meet the information and research needs of its students, faculty and staff. Academic library therefore is a type of library found in institutions of higher learning – universities, polytechnics, and colleges of education. Ekere (2014) confirmed this when she declared that any library attached to a university is called an academic library.

From these definitions of an academic library, it shows that an academic library has a function, and this is to "meet the information, research, and curriculum needs of its students, faculty and staff". This concurs with the idea of Aina (2014) which stated that the main purpose of an academic library is to support the objectives of a university, which are in the areas of learning, teaching, research and service. These libraries serve two complementary purposes: to support the school curriculum and to support the research of the university faculty and students. Ekere (2014) also shared his view by making an assertion that the main purpose of the academic library is to support the objectives of the university which is to promote teaching, learning and research. In essence, the academic libraries provide resources to support the teaching and research activities of their parent institutions. Thus, the academic library is meant to serve the

undergraduates, postgraduates, lecturers and other members of the university community. Oyewusi and Oyeboade (2012) in line with the ongoing discussion opined that the primary purpose of the academic libraries is to support teaching, learning and research in ways consistent with and supportive of the institution's mission and goals. They also went further to explain that academic libraries are often considered the most important resource center of any academic institution. Academic libraries play a prominent role in providing information services in various forms to students, lecturers and researchers. This is why Okunu, Akalumhe and Monu (2011) concluded that the university library is the heart and blood of the university.

To further buttress the idea behind the establishment and necessity of the academic library in every tertiary institution, Kumar (2013) argued that an academic library should aim to advance the functions of its university, this it does by striving to achieve its set objectives. These objectives as identified by Ifidon (2015) are; Provision of information resources for undergraduate instruction, term papers and project as well as for supplementary reading, Provision of information resources in support of faculty, external and collaborated researches, Provision of information resources in support of post-graduate research, Provision of expensive standard work especially in the professional disciplines, Provision of information resources for personal self-development and Provision of specialized information on the region within which the university is situated. Aharony (2014) in his on view made an addition to these objectives which are; To conserve knowledge, to create room for extension of knowledge by way of putting knowledge to use for research and Provision of latest knowledge to teachers in their fields for effective teaching for the extension of knowledge. The academic library in conjunction with other departments and staff of the institution work towards achieving these objectives.

Considering the objectives of higher education today, the academic library has to shoulder so many responsibilities, the library not only seek to complement class room study but also aid research.

2.1.2 Concept of Research

From time immemorial, man has always engaged in one form of research or the other. The early man in a bid to have better understanding and interaction with his environment engaged in various forms of research. Research over the years have grown to become a very important aspect of human endeavor. We all encounter research in our daily lives. The results of research on many topics are presented to us in the form of newspaper articles, books, reports, and television programs.

Research which is defined as the act of making a careful study about a particular problem with the purpose of establishing a new knowledge. Research is an investigative process of finding reliable solution to a problem through a systematic selection, collection, analysis and interpretation of data relating to the problem (Cyprian, 2013). Slesinger (2012) in his opinion viewed research as any human activity based on intellectual application in the investigation of matter. According to Keller (2010) research is a careful investigation or enquiry especially through search for new facts in any branch of knowledge using existing knowledge. The primary purpose of any research is to discover, interpret and develop new methods and systems for the advancement of human knowledge.

2.1.3 Concept of Information and Communication Technology

Information and communication technology (ICT) has become one of the basic building blocks of the present society. Many developing countries now regard the understanding and mastering of the basic skills and concepts of ICT as a core part of education. Information and Communication Technology (ICT) is daily giving birth to new concepts, new products and new

ideas. It transforms not only industries and business but also other aspects of life activities such as educational research.

The term Information and Communication Technology (ICT) denotes a convergence of interests between electronics computing and telecommunications, all of which are leading to the rapid development in various spheres of life. Osuagwu (2014) explains that ICT refers to the convergence of microelectronics, telecommunications and computers. Also, Lucey (2011) defines ICT as the process of acquisition, processing, storage and dissemination of vocal, pictorial, textual and numeric information. ICT as a generic term refers to the technologies used in collecting, storing, processing and passing information on various forms. This implies that ICT includes communication satellites, radio, television, telephone, video, tape recorder and microphone, among others.

Information and Communication Technology (ICT), according to Patterson (2015), conveys the notion of the application or handling of technologies that allow various forms of information to be processed, transmitted, manipulated, stored and retrieved with speed, accuracy and efficiency. The ease of data processing and transmission provided by these technologies has enhanced the flow of information across borders. Tan (2015) defines Information and Communication Technology as application of modern technology tools including computer network, software and hardware required for internet connection. Ifueko (2011) also views ICT as the digital processing and utilization of information by the use of electronic computers. It comprises the storage, retrieval, conversion and transmission of information. Emuakpor (2012) went further to describe ICT as all forms of technology applied to the processing, storing and transmitting information in electronic form.

Ayo (2014) viewed ICT as the use of computer system and telecommunications equipment in information handling; consisting of essentially three basic components which are: Electronic processing using the computer, Transmission of information using

telecommunication equipment and Dissemination of information multimedia. Okike and Iperen (2016) in addition to this also listed out the components of ICT to include computer systems, communication systems and reprographic systems.

The concept of information and communication technology has spanned across all spheres of lives and gaining wide attention, application and appreciation.

2.1.4 Application and benefits of ICT facilities in Academic libraries for undergraduate research

Academic libraries have for years played critically essential roles in providing information to support research in all subjects and disciplines within their host universities and colleges. But the last decade has brought a lot of changes in relationships between researchers and libraries (Breeding, 2017). Information is the key factor in any kind of research and development. The information itself and way it is accessed have undergone changes owing to the development in information and communication technology. Technological developments and the availability of information resources online have changed how research is done and also the services that academic libraries provide to their research communities. To this, Gbaji (2015) believed that both researchers and librarians have welcomed the benefits these changes have brought, adapting rapidly to them and seeking to exploit their potential to the full and they both look forward to further change in the coming years.

Application of ICT facilities to Academic libraries have improved the delivery of existing library services and also made room for the introduction of new services which are necessary in this information age. Elisha (2016) stressed on the need for ICT facilities in every academic library, he stated that a well-organized academic library should have ICT to assist the users and thus, today's library information systems should comprise software systems capable of capturing, transmitting, storing, retrieving, manipulating and displaying of information that

support teaching, learning and research. These systems are referred in the library setting as automated system consisting of software that has been developed to handle basic housekeeping functions of the library that are majorly Acquisition processes, Cataloguing and Classification, Circulation, Reference Services, and Serials Control and/or Management, all of which are still complemented with manual operations (Bretlet & Lucia, 2013).

ICT facilities have provided significant role in retrieval and dissemination of information and playing a vital role for modernization of libraries in certain areas. Some of these as identified by Maurice (2015) are in the areas of Library Automation, library management, library networking and digital library. Other areas pointed out by Godia (2016) are Internet and library Services, resource Sharing, technical communication and audio-video technology.

The application of ICT facilities to academic libraries have been of immense benefits to the overall community of users but most especially to undergraduate students in their research. According to Igbeka and Adeleke (2017), they provided an extensive explanation of the benefits of ICT application to research as follows;

- Universality: By using ICT, achieving and referring to more resources will be possible and researchers could have a wide range of information.

- Reduction in time: High speed in searching, collecting and analyzing information are advantages of researching based on ICT. In addition to process speed and searching information, this technology prepares tools for depiction, transcription, compare edit and archiving information, which accelerate different stages of research.

- Accuracy: Even tiniest points and information don't remain hidden with the help of computer, which helps researchers to be safe from many common human errors and increases the accuracy of the research work.

- Motivation and strengthening: Attractions and various features of ICT facilities can be effective in strengthening researcher's motivation and reducing the researching tiredness.

- Easy publish: With ICT capacities and internet no need for researchers waiting for publishers or different institutes to publish and use their works. Researchers can now without any cost publish every section of their research in world level and with unlimited editions.

- Impossible works: ICT facilities provide capabilities for researchers to have access to works which could have been difficult without this technology. Such works as Comparative studies, various technical lists, statistical graphs, virtual experiments and basic searches.

- Up-to-datedness: Using this technology will makes the research up to date and in accordance with the latest information and scientific findings, since the researcher has access to the latest theories and scientific findings any time.

Ashcroft (2014) also made and addition to these benefits by pointing out that ICT facilities provide speedy and easy access to information, provide round the clock access to users, facilitate access to unlimited information from different sources, provide information flexibility to be used by any researcher according to his/her requirements and facilitate the reformatting and combining of data from different sources.

2.1.5 Utilization of Information and Communication Technology (ICT) Facilities by Undergraduates for Research

Utilization is the act of making use of a particular thing. According to Wixon (2011) utilization refers to making practical and effective use of something in order to enjoy any benefit attached to it. In the light of this definition, utilization of ICT facilities can be seen as the practical and effective use of ICT facilities in order to enjoy the benefits attached to them.

Undergraduate students engage in several learning activities that employ the use of ICT facilities such as research, assignments, mailing, information processing and storage. Over the years, with the rapid growth in information resources especially in the digital format. The need for undergraduates to incorporate ICT facilities into their research has become a necessity.

Full utilization of ICT resources has not always been achieved in developing countries. Utilization of ICT library resources has always been accompanied with mixed reactions on the part of the users. While some people see library as a place for consulting different material which they cannot personally afford to buy, others see it as a place where someone can read and be free from distractions when preparing for exams. To others it is an exclusive place where only a privileged few could go. It is believed that the utilization of ICT-based library resources is limited to students who have; assignments, term papers, researches and examinations to write. Nwokocha (2013) affirms that most of those who make use of ICT resources in Owerri and Umuahia are students preparing for their exams or undergraduates who are writing their project. The above view is further buttressed by the submission of Kramer, (2017) that users of online library resources are mostly undergraduate students. Meaning that these undergraduate students who have more assignments, seminars and research report to write make good use of the library ICT facilities.

ICT facilities are being utilized by undergraduate students in the course of their research. Education researchers can also communicate or send messages in form of pictures, programmers processed, and diagrams through the internet. These documents can be sent through attachments in the internet, through the researcher's e-mail box. Research materials accessed in the internet can be downloaded using CD-ROM, flash drives etc. The information and materials can be read with a computer (software) or printed as hard copy. Undergraduate research students should embrace these developments to enhance research in Nigeria.

Tele-access, tele-presence, tele-monitoring and tele-sharing are other areas of ICT based library information sources where researchers can benefit. Brenfeld (2016) described tele-access as the use of on-line resources in learning and research including on-line libraries, databases, satellite data and virtual classrooms. Tele-presence according to Brenfeld enables researchers to experience events in remote sites. The researchers actually see and hear events as they happen remotely. Tele-monitoring on the other hand involves the use of professional groups and bulletin boards. By serving as mentors, researchers can generate and answer questions on area of interest.

Further, the World Wide Web (WWW) is the easiest and most popular way of accessing information and resources on the internet (McLaughlin and Oberman, 2016). The websites assist students and researchers to find thousands of journal articles, projects, readings, programs and curricular in the internet (Doty, 2015). The global school house web site, according to Doty, allows researchers around the world to work on collaborative projects.

2.1.6 Factors Hindering the Utilization of ICT Facilities for Research

There is an overwhelming awareness that there are great potentials in the availability and utilization of information and communication technologies. The use of ICT promotes development and improves services in any organization. It brings changes in today's business environment. In academic environment, it speeds up information delivery, facilitates teaching, learning and research. In spite of the above observation about the potentials, and benefits of using ICT facilities, the level of awareness and usage by undergraduates in academic libraries for research appears to be very minimal. So many enquiries have been made into the reason for the low usage of ICT facilities by undergraduates for research.

Ezeji (2014), pointed out that the major challenge that affects undergraduate students in the use of ICT facilities is inadequate power supply. For instance, one may be in the middle of an important work and suddenly there is power outage which results in wasted efforts, time and

frustration may set in. This fall in line with the findings of Ajayi (2012) that erratic power supply in Nigeria is a very major constraint to usage of ICT facilities. Since these facilities depend solely on power supply to function, when this is lacking, it becomes a major challenge to usage.

Lack of awareness is another contributing factor hindering the utilization of ICT facilities. Isah (2011) noted that most users are unaware of the existence of these facilities in the library and that they are not willing to discover and use them more effectively, also unfriendly interfaces or usability problems tend to hinder their further use of electronic resources. There is low availability of any training programs in universities regarding the need and use of ICT facilities. Most of the research scholars are not aware about these facilities which can be very helpful to start their research and can make their research very fast and very effective.

Inadequate funding has also contributed as a major challenge to the utilization of ICT facilities. There is steady rise in cost of these facilities without corresponding increase in funding, therefore, in most cases the libraries may end up acquiring a few facilities which may not be adequate enough for research thereby leading to no or low usage. Apart from the basic computers themselves, other costs associated with peripherals such as printers, monitors, paper, modems, routers, extra disk drives and subscription for online databases are usually high, thereby leading to the acquisition of a few which may not aid research as expected Onyenyilionwu (2015).

Insufficient bandwidth is one of the challenges facing the undergraduate students in using internet resources for academic purpose. Pariah (2013) pointed out that Lack of affordable connectivity and bandwidth is the primary obstacle towards using ICT in research, he continued that internet connectivity is normally either inaccessible or unavailable most of the times. To confirm this claim, Onyenyilionwu (2015) carried out a research among final year students of

the faculty of the social science in University of Nigeria Nsukka, to determine the factor that militate against the use of ICT facilities. The study indicates that 142(55.5%) out of the 256 respondents agreed that poor signal or connectivity militate against the use of ICT facilities. Lack of connectivity also complicates more basic efforts to collect and analyze information. It also complicates core IT functions, such as systems updates and virus control, thus increasing costs while reducing use value.

Aduwa and Iyamu (2015) pointed out some user-centered barriers as a factor affecting the usage of ICT facilities, these are lack of ICT skills, lack of knowledge of existing ICT facilities and resources, lack of awareness on new facilities and resources and lack of time to be spent on searching for information. Also, lack of training of staff in the use of computer and associated technologies was identified by (Opeke & Onuorah, 2013) in their study as a hindrance to effective use of ICT facilities in libraries.

Odera (2012) made an observation to another factor hindering usage of ICT facilities to be system design. He was of the opinion that when the facilities to be put in place are not designed in such a way that suite the researchers, it then becomes a hinderance to effective usage. In support of this opinion, Edna (2013) claimed that when the system does not show ease of usage, flexibility and convenience, it becomes a challenge to usage for research as this reduces the zeal and enthusiasm for ICT facilities making the researchers to go for the traditional alternatives.

In the light of the ongoing discussion, Nwabueze and Urhiewhu (2015) summarized that epileptic power supply, non-availability of online databases, inadequate or slow band width, inadequate computers, network problems, lack of ICT skills, and lack of formal training in ICT tools, server slowness and frequent breakdown as the factors hindering the use of ICT facilities in research. According to Nitin (2015), inadequate funds, shortage of human resources, lack of

training of staff, low bandwidth and irregular power supply are some challenges facing the use of ICT based library resources.

2.1.7 Strategies for Enhancing the Utilization of ICT facilities

Owing to the numerous problems facing the utilization of ICT facilities, various strategies have been suggested as ways by which the problems affecting the use of ICT-based library resources can be reduced to enhance usage. Ajayi and Adetayo (2015) suggested that the library environment should be made more pleasant and comfortable, the library environment is the first motivator that will attract the users to the library.

The problem of inadequate awareness was addressed by Popoola (2014) recommendation that the library management in academic libraries should create Faculty awareness about the available ICT facilities. This according to him could be done through planned public relations programs, library week, study tours, user education programs, library exhibitions, organization of seminars and workshops. Such programs according to Dulle (2016) should equip users with ICT skills, ability to locate and retrieve relevant information, evaluate information and its sources and facilitate overall understanding of ICT facilities.

On the problem of inadequate funding, Fatoki (2017) suggests that university management of universities either Federal or State should provide enough funds, also, the government should vote a reasonable amount of fund to education, especially the library system, this will enable the library management buy all infrastructure and equipment needed for digital library to work effectively and efficiently. Igbo and Dike (2016), believed that the problem of low availability of ICT based resources was due to lack of high funds. They therefore advised that academic libraries be funded directly by the government instead of the libraries receiving their subvention from the university authority. In addition, Ogbonna (2015) suggested that libraries could engage in local income generating venture such as production and

sales of such items as bags, notebooks, T-shirts bearing library Logo and also, the library bindery could undertake commercial binding ventures such as binding of student's projects and other materials as well as lamination of important documents in order to augment the government allocations which are never sufficient.

Since epileptic power supply is a very major problem in developing countries, Ogbonna (2015) suggested that libraries should make provisions for alternative sources of power in order to make sure that these facilities are always accessible and in operation when needed. Anyagu (2013) went further to add that libraries can facilitate the available power supply by acquiring standby power generators. Electricity supply should be made steadily available to the university and environs in order to maximize the usage of ICT facilities.

Considering the problems of internet connectivity and bandwidth, Adomi (2013) made an assertion that the speed of connecting to the internet should be very fast, He therefore suggested that libraries should use or subscribe to fast ISPs to enhance efficient performance, this will also save time of the users and give adequate value to the researchers and the research works as well. Furthermore, internet providers should develop their networks to be adequate and fast enough.

A list of solutions to problems of ICT-based library resources utilization was given by Echezona (2017). He opined that both availability and utilization of these resources will be enhanced if the following were taken into consideration:

- Provision of both printed and electronic information resources.

- Provision of need-based education programme by the library for easier exploitation of available resources.

- Provision of on-line materials in electronic format.

- Updating the skills of library staff to enable them to help users.

- Improving the funding of the library to enable it to purchase and maintain needed information technology, books, journals and audio-visual resources.

In addition to the ongoing discussion, Maliki and Uche (2017) also found out that not only the learners but also their parents and the circumstances of their existence place a consideration impact on the learner's ability to utilize ICT-based library facilities. They therefore encouraged parents to lay proper foundation for their children's school learning. They believed that if the home provides the necessary level of cognitive stimulation which the learner requires at different stages of development, the reading culture will be cultivated early in life. The hunger for printed materials will be created and utilization of the library and its abundant resources will just follow a natural course, for the enhancement and intellectual development of the learners.

2.2 Review of Related Empirical Studies

In the process of ascertaining the degree of availability, impact and extent of utilization of electronic resources in tertiary institutions through their libraries, the study according to Ray and Day (2013) found out that 83% of students surveyed indicated the awareness of the availability of ICT facilities in their library and felt that using these facilities saved them time. Furthermore, found it relatively easy to use the facilities. Out of the total number of 182 respondents, 67% stated that if the computers were busy, they would wait for it to become free rather than use the print tool. This study is related to this current work because it used a descriptive survey approach which the researcher is using. In a study conducted by Nnoma (2013) to evaluate the availability and level of usage ICT-based library resources in Nigerian universities. Federal, state and private universities were used. Out of the 510 questionnaires given out to respondents, only 366 were returned, representing a 72% return rate. The findings revealed that there was a significant difference in the mean ratings of students in Federal, State and Private universities on the utilization of ICT-based library resources for research. However,

the researcher observed that private university students were predominant users of ICT-based library resources. Using a questionnaire as the instrument for data collection makes this work related to the researcher's work.

Furthermore, in an attempt to study the awareness of students on the availability of ICT facilities for research, the work of Tamrakar and Garg (2016) shows that 59.89% users are aware about availability of these facilities in the library. Whereas, 40.1% users specified that they do not know about them. Gasaymeh (2017) in his research to examine the extent of undergraduate students' use of Information and Communication Technologies (ICT) for personal and educational purposes. Out of the 252 participants who completed the questionnaire, the results showed that 92% the students owned smartphones and majority of them owned laptop computers. They had easy access to common types of technologies such as computers and the internet. They had moderate competencies in the general use of these common technologies, and high competencies in using smartphones. This relates to this work by the way of using questionnaire as instrument for data collection.

In the context of developing countries, Okello-Obura and Magara (2016) investigated electronic resources access and utilization at the East African School of Library and Information Science, Makerere University, Uganda. Out of the 250 targeted students, 190 responded, giving a response rate of 76%. The study revealed 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. The design of this study is descriptive survey design; therefore, it relates it to the current work of the researcher. In a similar study conducted by Afaafa (2015) to determine the level of preference and usage of ICT facilities by students of Mzumbe University, Tanzania. A total of 300 participants were issued a questionnaire, of which 282 was returned, showing a return rate of 94%. The findings indicated that there was strong preference for ICT facilities as compared to traditional library materials. Users who showed

low preference and usage indicated high complexity, lack of ICT skills, low availability as reasons for not using these facilities. Questionnaire which serves as the instrument for data collection creates a relationship between this study and the current work in view.

In the challenges, Ebere (2016) carried out a survey to identify factors that hinder effective use of information communication technology (ICT). This study was located in University of Nigeria Nsukka, Enugu State. A cross sectional survey of 100 study participants was conducted. The instrument used for data collection was structured questionnaire. Greater percentage of the respondents (81.0%) said that there are factors that affect effective use of ICT in teaching, learning and research. In a similar research work by Urhiewhu (2014) to identify Factors Militating Against the Use of Digital Information Resources by Undergraduates in Delta and Edo States, Nigeria. The study which adopted a descriptive survey research design. The study was conducted in Federal and State Universities in Delta and Edo states. Structured questionnaire was used as instruments for the collection of data and the sample for the study comprised one thousand and eighty-eight hundred (1,088) users drawn from four universities. Out of 1,088 questionnaires distributed, 972 was duly completed and returned. This shows 89.5% return rate. It was observed that in spite of the growing adoption of ICT, there are still certain hinderances to full utilization. Descriptive survey design which was adopted relates this study and that of the researcher.

In a study by Obiora and Nkamnebe (2014) which evaluated the use of library ICT-based resources and services by students of Paul University, Awka in Anambra State. The study adopted descriptive survey research method and employed a structured questionnaire and observations as instruments for data collection, covering a population of 276 students. The study revealed that users were fairly satisfied with the ICT services and facilities provided by the library, this is due to the challenges such as epileptic power supply, inadequacy of library ICT facilities, lack of maintenance and no training. The respondents in the survey of Mittal and

Bala (2013) said, they do not get any training from university library; they learn to use the ICT facilities either by self-instructions or with guidance from colleagues and friends. That is why; they think that e-Resources section is not helpful for them. Therefore, majority of the respondents use e-Resources sparingly, only 8% of them are daily users. With the use of questionnaire as the instrument for data collection, its therefore relates this work to that of the researcher.

2.3 Summary of Literature Review

The review of literature was done under the conceptual framework and related Empirical studies. The conceptual framework explored the concepts of academic library, Research, Information and Communication technology(ICT), utilization of ICT facilities by undergraduates, factors hindering utilization and possible strategies for enhancing the utilization of ICT facilities. The review shows Academic library as any library which is established in institutions of higher learning to support learning, teaching and research activities of the university community. Research as the act of making a careful study about a particular problem with the purpose of establishing a new knowledge. Information and communication technology as the application of computing power in the selection, acquisition, organisation, storage and dissemination of information for teaching, learning and research.

A lot of studies have been carried out on ICT facilities availability and utilization by students of higher institution of learning and other users of academic libraries. On its effect to the undergraduates, it was observed that e-resources are indispensable part of the contemporary works. It is a powerful tool for the development of quality teaching, research, learning and community service. It is a catalyst for radical change in existing school practices a veritable vehicle for preparing the students for the future. E-resources present library users with access to enormous volume of information, covering geographic units that are global in scope.

However, literature has revealed that electronic resources availability does not mean accessibility and utilization. As a matter of fact, there are challenges facing its utilization. Some literatures reviewed observed that low use of the electronic resources is due to lack of awareness on the part of users. On the other hand, informed library users will understand that libraries have electronic resources that are more comprehensive and scholarly than most websites.

Hopefully, a lot of researches exist in issues relating to e-resources in libraries, most of them focused on the relevance of e-resources, availability of e-resources and its utilization. Results from all these studies indicate that none of these resources are adequately being utilized in academic libraries. It is as a result of the wide gap that exists between the availability and utilization of electronic resources in some academic institutions that the researcher decided to explore on the issues behind the rate of availability and extent of usage of ICT facilities for research by undergraduate students of Rhema University, Aba, Abia State. Furthermore, the interest of the researcher to focus on this institution was due the fact there are few research works in this topic which are focused on private universities.

This research work though contributing to existing literature in the subject matter of ICT facilities in libraries also aim at bridging the gap existing in the areas of availability and utilization of ICT facilities in academic libraries.

CHAPTER 3

RESEARCH METHOD

This chapter focuses on the research method employed by the researcher in carrying out this work.

This chapter will further be divided under the following sub-headings:

- Research Design

- Population of the Study

- Sample Size and Sampling Techniques

- Instrument for Data Collection

- Method of Data Collection

- Method of Data Analysis

3.1 Research Design

The design of the study is a descriptive survey design. According to Muguda (2013) a survey research is one in which group of people or items are studied by analyzing data from a few people or items considered being representative of the venture group. The purpose of descriptive research is to describe the current state of affairs at the time of the study and the linear relationship between two or more variables without any hint of attributing the effect of one variable on another (Salkind, 2016). Also, in descriptive research, the researcher has no control over the variables of interest and therefore, cannot manipulate them.

This research design is considered adequate for the study because the purpose of the study is to identify and understand the relationship that exists between the independent variables (availability of ICT-based library resources) and the dependent variable (utilization of ICT based library resources). This means that the researcher's intention is to explain the situation of undergraduate research in regard to the utilization of ICT facilities in academic libraries.

3.2 Population of the Study

The population of the study comprised of all duly registered undergraduate students users of Rhema University library. The population of the study was considered appropriate because the information required for the study could be obtained from them.

3.3 Sample Size and Sampling Techniques

Sampling technique is the *modus operandi* or procedure the researcher will adopt in selecting some sampling units from which inferences about the populations is drawn (Kothari, 2013). Furthermore, a sample is precisely a part of the population. Sample method was adopted in order to adequately manipulate the large population, save time, to reduce the errors arising from calculations of large number and to reduce exorbitant cost of providing copies of the research instruments to cover the whole population. The sample size for the study is 758 students and a purposive sampling technique was use to sample a total of 200 respondents for the study.

3.4 Instrument for Data Collection

The instrument for data collection is a questionnaire titled Extent of Availability and Utilization of ICT-based Library Resources Questionnaire ((EAUICTBQ). The instrument is divided into six sections, A, B, C D, E and F. Section A contains demographic information of the respondents while section B, C D, E and F will focus on the substantive objectives of the research.

3.5 Method of Data Collection

The method of data collection was by personal administration of copies of the questionnaire by the researcher to the sampled undergraduate students in the Rhema University, Aba. The completed questionnaires were retrieved by the researcher. The researcher personally visited

the university libraries to observe and record the availability, the utilization, problems and strategies to improve the use of ICT-based library resources in the institution being studied.

3.6 Method of Data Analysis

Method of data analysis adopted for the study was descriptive statistics of mean score and standard deviation. A four-scale method was used in order to determine the degree of agreement/acceptance or otherwise in each of the rating scale item. The criterion mean of 2.5 was used which indicated the level of acceptance. Any mean score less than 2.5 were considered rejected. Normal values assigned to the scale are as follows:

Strongly Agree	-	(SA) = 4
Agree	-	(A) = 3
Disagree	-	(D) = 2
Strongly Disagree	-	(SD) = 1
And		
Very High Extent	-	(VHE) = 4
Highly Extent	-	(HE) = 3
Low Extent	-	(LE) = 2
Very Low Extent	-	(VLE) = 1

The mean itself was calculated thus:

$$\bar{x} = \frac{\sum fx}{N}$$

Where $\bar{x}$ = Mean

N = Total number of respondents

f = frequency of the respondents

x = score

$\sum$ = summative sign

Criterion Mean = $\frac{4+3+2+1}{4}$ = $\frac{10}{4}$ = **2.5**

CHAPTER 4

DATA PRESENTATION, ANALYSIS AND DISCUSSION

In this Chapter results are presented. It presents result of the data collected and analyzed for the study. The presentation is done alongside the research objectives. This chapter is of essence as it provides the background upon which discussion of findings; conclusion and recommendations for the study are based.

4.1 Data Presentation

Table 4.1: Response Rate

The table shows the response rate for the study. Out of the total of two hundred (200) copies of questionnaires distributed, one hundred and ninety-four (194) was successfully returned. This shows a response rate of 96.5%. The distribution was done personally by the researcher using the purposive sampling technique.

Institution	Questionnaire distributed	Questionnaire collected	Return rate
Rhema university	200	194	96.5%

table 4.1 response rate

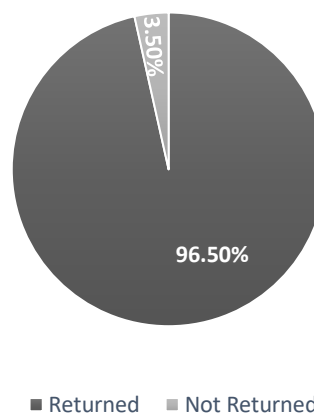*Fig. 1: Percentage of returned and not returned questionnaires*

Demographic Variables of Respondents

Gender	Respondents
Male	91
Female	103
	194

Table 4.2.1: Gender of the respondents

Level	Respondents
100	58
200	55
300	43
400	38
	194

Table 4.2.2: Level of the respondents

Research question 1:
what is the extent of availability of ICT facilities at Rhema university library for research?

Table 4.3: Extent of availability of ICT facilities

S/N	ITEMS	VHE	HE	LE	VLE	N	Mean	Decision
1.	Computers	103	58	22	11	194	3.3	Accept
2.	Reprographic Devices (printers, scanner, photocopier)	94	63	28	9	194	3.4	Accept
3.	CD-ROMs	83	71	25	15	194	3.1	Accept
4.	Online Databases (DOAJ, TEAL, EBSCOhost)	110	62	17	5	194	3.4	Accept
5.	E-books	72	83	23	16	194	3.0	Accept
6.	Internet Connectivity	86	77	18	13	194	3.2	Accept
7.	Online Catalogue	55	43	65	31	194	2.6	Accept
8.	Telephones	31	23	71	69	194	2.0	Reject
9.	Projectors	28	33	59	74	194	2.0	Reject
10.	Digital cameras	23	26	62	83	194	1.9	Reject
	Grand						**2.79**	**Accept**

Source: *Researcher's Field Survey*   **Note: Criterion Mean = 2.5**

Table 4.3 above indicates responses by undergraduate students of Rhema university on the

extent of availability of ICT facilities in the library for research. There are ten (10) item

statements in the table which were used in the questionnaire. The data collected indicates that 194 undergraduate students were the respondents. The response gathered showed that items 1, 2, 3, 4, 5, 6 and 7 are available to a very good extent in the library with mean scores of 3.3, 3.4, 3.1, 3.4, 3.0, 3.2 and 2.6 respectively. Furthermore, majority of the respondents showed a low availability of items 8, 9 and 10 with mean scores of 2.0, 2.0 and 1.9 respectively.

Research question 2:
what is the extent of utilization of the ICT facilities at Rhema university library for research?

Table 4.4: Extent of utilization of the available ICT facilities

S/N	ITEMS	VHE	HE	LE	VLE	N	Mean	Decision
1.	Computers	113	61	14	6	194	3.5	Accept
2.	Reprographic Devices (printers, scanner, photocopier)	91	77	19	7	194	3.3	Accept
3.	CD-ROMs	64	75	42	13	194	2.9	Accept
4.	Online Databases (DOAJ, TEAL, EBSCOhost)	93	66	27	8	194	3.2	Accept
5.	E-books	47	62	71	14	194	2.7	Accept
6.	Internet Connectivity	106	75	9	4	194	3.4	Accept
7.	Online Catalogue	44	56	73	21	194	2.6	Accept
8.	Telephones	17	21	64	92	194	1.8	Reject
9.	Projectors	23	28	60	83	194	2.0	Reject
10.	Digital cameras	19	22	57	96	194	1.8	Reject
	Grand						**2.72**	**Accept**

Source: *Researcher's Field Survey*   Note: Criterion Mean = 2.5

Table 4.4 above represents the utilization of the identified ICT facilities. The respondents showed varied views as regards to the utilization of those facilities for research, this which reflects in the grand mean score of 2.72. There are ten (10) item statements covering responses by undergraduate users of the library. The above table indicates a good extent of utilization for item statements 1, 2, 3, 4, 5, 6 and 7 which have mean scores of 3.5, 3.3, 2.9, 3.2, 2.7, 3.4, and

2.6 respectively. On the other hand, item statements 8, 9 and 10 with mean scores of 1.8, 2.0

and 1.8 respectively were shown to be least utilized by the respondents.

Research Question 3:
What are the benefits of library ICT facilities to undergraduates for research?

Table 4.5: Benefits of ICT facilities to undergraduates for research

S/N	BENEFITS	SA	A	D	SD	N	Mean	Decision
1.	It reduces time spent on research thereby speeding up research	74	83	29	8	194	3.1	Accept
2.	Improves communication and resource sharing among researchers	81	86	21	6	194	3.5	Accept
3.	Provision of access to a wide range of information	78	89	17	10	194	3.2	Accept
4.	Efficient organization and classification of information	63	76	37	18	194	2.9	Accept
5.	Reduce distance barrier in carrying out research	72	81	27	14	194	3.0	Accept
6.	Creates room for easy publication of research works	61	77	31	25	194	2.9	Accept
7.	Availability and access to updated information resources	83	64	35	12	194	3.1	Accept
8.	Facilitate the reformatting and combining of data from different sources	68	74	33	19	194	2.9	Accept
9.	Easy evaluation and validation of information materials	63	67	41	23	194	2.8	Accept
10.	Creates motivation for research by providing an inviting environment	73	62	32	27	194	2.9	Accept
	Grand						**3.03**	**Accept**

Source: *Researcher's Field Survey*   **Note: Criterion Mean = 2.5**

Table 4.5 presents data obtained from the undergraduate students of Rhema university on the

benefits of ICT facilities to their research. There are ten (10) item statements covering on the

benefits of the use of ICT facilities in the university library under study by undergraduates. The

result reports a total acceptance by the respondents on their opinion on the benefits of using

ICT facilities for research as it showed a grand mean score of 3.03. The result gathered here

showed that the respondents are very much of the view and strongly believe that the use of ICT

facilities Improves communication and resource sharing among researchers as indicated in item

two (2) with mean score of 3.5, being the highest. Easy evaluation and validation of information materials as indicated in item 9 with a mean score of 2.8 showed a low degree of agreement from the respondents.

Research question 4:

What are the problems hindering undergraduates from utilization of ICT facilities for research?

Table 4.6: Problems hindering the usage of ICT facilities for research by undergraduates

S/N	PROBLEMS	SA	A	D	SD	N	Mean	Decision
1.	Epileptic power supply	97	78	12	7	194	3.3	Accept
2.	Inadequate guide on how to use the available electronic resources	88	63	31	12	194	3.1	Accept
3.	Frequent breakdown of facilities	103	75	11	5	194	3.4	Accept
4.	Low maintenance of the available ICT facilities	91	79	15	9	194	3.3	Accept
5.	Unawareness of available electronic resources	72	85	21	16	194	3.1	Accept
6.	Unconducive atmosphere in the library	63	78	34	19	194	2.9	Accept
7.	Inadequately trained personnel	81	66	26	21	194	3.0	Accept
8.	Poor internet connection for the online resources	114	63	11	6	194	3.4	Accept
9.	Inadequate ICT facilities	93	72	21	8	194	3.2	Accept
10.	Library lacks up-to-date ICT facilities	97	81	12	4	194	3.4	Accept
	Grand						3.21	Accept

Source: *Researcher's Field Survey*   **Note: Criterion Mean = 2.5**

Table 4.6 indicates responses from undergraduate users of Rhema university library on the challenges faced in the use of ICT based resources in the university library under study. This is indicated with a grand mean score of 3.21. There are ten (10) items covering responses on the problems hindering the use of electronic resources in the library being examined. The table shows a total acceptance and strong agreement by the respondents in their views on the challenges faced in the use of ICT facilities.

Research Question 5:

What are the Strategies that could be applied to enhance the proper utilization of the ICT facilities?

Table 4.7: strategies to enhance the usage of ICT facilities for research

S/N	SOLUTIONS	SA	A	D	SD	N	Mean	Decision
1.	The Library administrators should provide alternative sources of power such as generating sets or solar power.	94	88	8	4	194	3.4	Accept
2.	Librarians should organize proper user education of how to use the available ICT facilities	82	76	21	15	194	3.1	Accept
3.	Facilities should be promptly fixed upon breakdown and alternatives made available	101	82	7	4	194	3.4	Accept
4.	There should be adequate maintenance of the ICT facilities	116	72	5	1	194	3.5	Accept
5.	Proper awareness should be made to bring the attention of the users to the existence of these ICT facilities	87	71	25	11	194	3.2	Accept
6.	There should be improvement on internet Connectivity	98	79	12	5	194	3.4	Accept
7.	Library personnel should be properly trained to assist users	91	82	15	6	194	3.3	Accept
8.	The library should provide better bandwidth to improve internet connectivity.	106	77	9	2	194	3.4	Accept
9.	ICT facilities should be adequately provided	92	76	18	8	194	3.3	Accept
10.	Library should make provision for the latest and up-to-date ICT facilities to enable researchers get up-to-date information in their area of interest	85	82	21	6	194	3.2	Accept
	Grand						**3.32**	**Accept**

Source: *Researcher's Field Survey*   Note: Criterion Mean = 2.5

Table 4.7 indicates responses from undergraduate users of Rhema university library on the strategies to enhance use of ICT facilities in the university library. There are ten (10) items covering responses on the strategies to enhance the use of electronic resources in the library being examined. The table shows a total acceptance and strong agreement by the respondents in their views on the strategies to enhance the use of ICT facilities.

4.2 Summary of Findings

The findings from the researcher's field study shows there is a correlation between availability and utilization of ICT facilities in the institution being studied. Benefits associated with the use of ICT facilities were identified and accepted alongside problems that militate the use of these facilities. Strategies were suggested and accepted too.

The results of the findings showed that some ICT facilities were available in the library while some were not available, facilities such as Computers, reprographic devices, CD-ROMs, Online Databases, E-books, Internet Connectivity, Online Catalogue were mostly available and also these facilities were the most utilized by the undergraduate researchers with Computers, Internet Connectivity, reprographic devices and Online Databases showing the highest degree of utilization. Reduction in time spent on research, efficient organization, improvement of communication, provision of access to wide range of information among others were accepted as benefits of ICT facilities to research. However, challenges such as epileptic power supply, frequent breakdown of facilities, poor internet connection, lack of up-to-date ICT facilities hindered effective utilization. There is a high level of agreement that provision of alternative sources, promptly fixing facilities upon breakdown, adequate maintenance of the ICT facilities, improvement on internet connectivity, proper user awareness will serve as strategies to tackle the challenges.

4.3 Discussion of findings

Objective 1
Extent of availability of ICT facilities for research

The data gathered from the study showed that the academic library being studied has made a great attempt to embrace the new trends in librarianship and library services. This is evident based on the fact that large number of ICT facilities were available for research. This finding adjoins the study of Anaehobi (2015) who believed that the academic libraries house

computers and UPS, scanner, antenna, etc. It is also supported by Mostafa (2014) who observed that many academic libraries in Nigeria are becoming increasingly digitally oriented. Also, Bells (2016) noted that university libraries are sub sensing to electronic journals, data bases, providing research and scholarly writing software and computer work stations for students to access journals.

Objective 2
Extent of utilization of ICT-based library resources in undergraduate research

The discussion on the second research question, "extent of utilization of ICT-based library resources" was undertaken. This research question presumes to find out whether researchers in the university studied use ICT-based resources to a great extent or not. It seeks to investigate the level of use of such resources as this can have impact on the quality of their research work. The result of data analysis showed that some ICT-based library resources are utilized by undergraduates for research, with a higher preference of one kind of facility over another. The result of this study, therefore confirmed that a positive and very strong relationship exists between extent of availability and extent of utilization of ICT facilities in the academic library under study, this reveals that as well as making the facilities available, the library also ensured utilization of these facilities by undergraduates for research. This finding is in line with that of Croom (2012) that starting from the 2000s up to date, rapid advances in technology have provided undergraduate researchers with ICT resources as alternative to the traditional university library materials.

This finding is in accordance with that of Ajayi and Adebayo (2015) who reported that there was increasing level of utilization of ICT-based resources for research purposes among the undergraduate students in Nigeria Universities. In a study conducted at Obafemi Awolowo University, Ajayi and Adebayo found that ICT library resources are maximally utilized by the

students. According to the authors, there was a progressive increase in the number of ICT library users.

The study therefore asserts that there is a significant relationship between availability and utilization of electronic resources in the library being examined.

Objective 3
Benefits of library ICT facilities to undergraduates for research

The discussion for this finding is based on the data gotten from the third research question "what are the benefits of library ICT facilities to undergraduates for research?" findings from the study indicate that ICT facilities are of much benefit to undergraduates in the course of their research. From reduction in time spent on research thereby speeding up research, improvement in communication and resource sharing among researchers, provision of access to a wide range of information, efficient organization and classification of information and reduction in distance barrier in carrying out research. This implies that numerous benefits can be derived in the application of ICT facilities to undergraduate research. This finding is in line with Cattier (2012) that availability and access to updated information resources, easy reformatting and combining of data from different sources, efficient evaluation and validation of information materials stand out as some of the reasons and benefits of the utilization of ICT facilities to undergraduates. Nwabia (2014) also added to this by pointing out reduction in distance barrier in carrying out research, creation of room for easy publication of research works and creation of motivation for research by providing an inviting environment as benefits enjoyed from the use of ICT facilities.

Objective 4

Problems that hinder the utilization of ICT-based library resources by undergraduates for research

With regards to the fourth question, "what are the problems that hinder the utilization of ICT facilities by undergraduates for research?" findings from the study revealed a number of significant problems. For instance, of a total number of 10 items that constitutes such problems to researchers, all of them were considered by the researchers as significant. Response to the question on the challenges faced in the access and use of electronic resources in the libraries being surveyed indicated numerous challenges. These challenges which range from Epileptic power supply, Inadequate guide on how to use the available electronic resources, Frequent breakdown of facilities, Low maintenance of the available ICT facilities, Unawareness of available electronic resources, Unconducive atmosphere in the library, Inadequately trained personnel, Poor internet connection for the online resources, Inadequate ICT facilities and lack of up-to-date ICT facilities. What this means is that many researchers could be hindered from benefiting from the potentials that ICT-based library resources have to offer to researchers. This could lead to poor research outputs. These findings are supported by earlier report of Erens (2016) that lack of awareness, incompetence, as well as lack of adequate fund protracts the utilization of ICT-based resources in Nigerian libraries. Also, Agaba (2012) noted that most researchers had no access to the ICT library services. The author further reported that the researchers were not aware of the use of ICT-based library resources in research purpose. Further the finding is in agreement with the result of Marigold (2017) which stipulated that another problem facing the utilization of library resources is the issue of librarians not being well acquainted with the ICT resources. This problem among others poses serious hindrances to the use of ICT-based library resources by undergraduate research students in Nigeria universities.

Objective 5

Strategies for enhancing the utilization of ICT-based library resources in undergraduate research

The final part of the discussion relates to the fifth research question "what ways could be used to enhance the utilization of ICT-based library resources by undergraduates for research in Rhema university?" in all, seven ways for the enhancement of the use of ICT based library resources by researchers were proffered. Researchers reported that each of the ways were significant. However, through the response received, the ways were ranked in terms of perceived importance and relevance as follows; There should be adequate maintenance of the ICT facilities, The Library administrators should provide alternative sources of power such as generating sets or solar power, Facilities should be promptly fixed upon breakdown and alternatives made available, there should be improvement on internet Connectivity, Library personnel should be properly trained to assist users, ICT facilities should be adequately provided. This finding is in consonant with the suggestions of Echezona (2017) who opined that the level of utilization of ICT library resources can be greatly enhanced by the provision of need base education programme by the university library to users; updating the skill of library staff to enable them help users; improving the funding of libraries and reducing the cost of using the library services by users. Similarly, Ikegbune (2014) outlined some strategies for enhancing the utilization of ICT-based library resources to include creation of awareness on the use of ICT-based library resources, provision of better trained staff with computerize in ICT utilization, and training staff in information and communication among others.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

In this chapter, the researcher presents the following sections: discussion of findings, implication of the findings, recommendations, limitations of the study, conclusion, suggestion for further studies and summary of the study.

5.1 Summary of the study

The purpose of this study was to determine the extent of availability and utilization of library ICT facilities for research by undergraduate students of Rhema University, Aba. In order to achieve the objectives, five research questions were formulated to guide the study.

In this study, literatures were reviewed under: conceptual framework; review of empirical studies and summary of reviewed related literature. From the literatures reviewed, it holds clearly that the emergence of ICT in libraries gave birth to the issue of inclusion of e-resources in the library's collection which now serves as a tool for upgrading and developing the library resources and services.

Descriptive survey design was used for the study. A sample size of 200 drawn from a total population of 792 which comprised of undergraduate students of Rhema University was used for the study. The study adopted the use of purposive sampling technique to derive the sample size. The instrument for data collection was a researcher developed questionnaire entitled: *Extent of Availability and Utilization of ICT-based Library Resources Questionnaire* ((EAUICTBQ) designed to collect relevant data on electronic resources variables (availability, type, level of utilization, challenges facing the use and solution) in Rhema University library. Responses to the questions asked, data collected and analyzed are depicted in tables and charts.

The results of the study showed that 194 respondents out of a total number of 200 respondents took part in the survey. The findings indicate that the library under study have 7

out of the 10 ICT facilities being examined. It further shows that the majority of the users is aware of these resources and uses them sometimes to a very appreciable extent.

Furthermore, the findings showed benefits which the users derived from use of these of the resources. But adequate use of these resources was hindered as a result of some challenges which were identified by the researcher and accepted by the respondents. Recommendations were made to overcome the challenges. Such recommendations include awareness creation, user education, increased acquisition of the resources, adequate funding of the library, provision of power stations, purchase and installation of standard ICT facilities, etc. Consequently, much need to be done in the area of creating awareness on the existence of electronic resources in the academic libraries under study. The undergraduate should be taught and guided on how to make effective and efficient use of these resources through the academic course and library public relations services both traditional and electronic.

5.2 Conclusion

The researcher has through this study answered the research questions as reflected in chapter 4 and 5. The conclusion is drawn from the findings of the study with reference to the research questions as outlined in chapter one. In conclusion therefore, this study found that:

A greater number of ICT facilities is provided for use in Rhema University library as a result of the need to solve the information needs of its clienteles who are ICT biased and would prefer electronic services to the traditional print services.

These ICT facilities at Rhema University library are used extensively among undergraduates who formed the greater population of the academic library users. It further, showed that the majority of undergraduate students made the greatest use of the facilities. They made use of the ICT facilities for various purposes and these include for researches, for leisure, to enhance studying needs, to write projects, to do assignments and to prepare for exams.

In addition to the utilization of the ICT facilities, the study also observed that the undergraduate students derived numerous benefits from the use of ICT facilities especially to their research works. The major of these benefits being reduction in time spent on research thereby speeding up research, improvement in communication and resource sharing among researchers, provision of access to a wide range of information, efficient organization and classification of information and reduction in distance barrier in carrying out research.

The study also established that undergraduate students encountered a few problems in their use of library ICT facilities, and that these could be categorized into barriers relating to information technology infrastructure and personal barriers. Problems that related to poor infrastructure were poor internet connection, inadequate ICT facilities, epileptic power supply, unconducive atmosphere and frequent breakdown of facilities. On the other hand, unawareness of available resources, inadequate guide and inadequate trained personnel were personal barriers.

Finally, the study went further to reduce the gap between availability and utilization of ICT facilities by providing solutions and strategies to the already identified problems which were indicated as militating factors towards utilization of the ICT facilities.

5.3 Implication of the findings

The findings of the study, shows that the undergraduate users of Rhema university library have positive perception towards the use of ICT facilities for academic enhancement. Results have shown that most of these undergraduates have high demand for these resources but sometimes cannot utilize it as a result of some challenges, personal and non-personal. This means that even though these libraries acquire electronic resources, if not utilized, the purpose is defeated as a result of negative change in the perception of the users. Researchers who fail to make use of ICT facilities may be losing valuable information available to them. This supports

the work of Scoyoc & Cason, (2016) which says that the vast majority of research students turn to ICT first for academic research.

Researchers utilization of ICT-based library resources significantly for research and academic work implies that university library that provide such resources effectively will help to promote academic scholarship and research, thereby helping such institutions to fulfill their status as centers of learning and research. On the contrary, universities which fail to support their libraries with ICT facilities risk standards in general academic work and research of her students/researchers.

The findings that researchers utilize ICT-based library resources to a limited extent implies that unless universities include ICT training in their curricula, at least for research students, underutilization of ICT-based library resources will lead to a downward slide in quality of academic and research work. Limited utilization of ICT-based library resources could also be due to lack of fund or high cost of access. This implies that utilization calls for a holistic approach from government support through policy implementation and provision of infrastructures that support the use of ICT-based library resources.

Finally, this study would motivate authorities of Nigerian university libraries to take step to create awareness of their ICT facilities. Since this ineffective use is as a result of unawareness of available electronic resources related to their disciplines, inadequate guide on how to use the available electronic resources, poor internet connection, inadequate ICT facilities, epileptic power supply, unconducive atmosphere, frequent breakdown of facilities and inadequate trained personnel, it can then lead to low performance of undergraduate in solving their information problems, carrying out researches, studying, writing projects and in preparation for examinations. The result of the study will ginger librarians of Rhema university to find solutions to these problems.

5.4 Recommendations

Based on the findings of the study, the researcher wishes to make the following recommendations towards an even more effective availability and utilization of ICT facilities for research by undergraduate students of Rhema university, Aba. The recommendations are made inline with the research questions drawn from the objectives of the study;

1. The problem of inadequate awareness can be addressed by the library management the library should give more education to users on the use of ICT resources. Training courses and library public relations programmes (both traditional and electronic), should be organized for awareness and guide to effective use of ICT facilities among the users of the library.

2. Purchase and building of power station to ensure regular power supply because these resources could only be utilized using power supply.

3. The skills of librarians on ICT-based resources should be updated to enable them direct the users on the use of ICT resources for research purposes. The skill can be connected through seminars, workshops, conferences and short course training of the staff. There should be constant training and re-training so as to make them flow with current trends.

4. Improving the Speed of Internet Connectivity to provide speedy access and utilization of these ICT facilities.

5. There should be education of undergraduate research students on the use of ICT-based library resources. This will help to sensitize the undergraduate researchers on the importance of ICT resources available in libraries.

6. University budgetary allocation to libraries should improve so that university libraries can make the cost of ICT-based library resources more affordable to users by way of subsidy.

5.5 Limitations of the study

While conducting this research, the researcher encountered some constraining factors, like, time, which was a major hindrance to the study, as the time given for the study to be completed was shared with other academic activities like course/academic work, assignments, projects, practical, exams, etc.

Also, the researcher did not find it easy to get sufficient funds required to run around in the collection of necessary materials needed for the successful completion of the project. Also, current information materials required for the research were difficult to find in traditional print medium as some of the electronic resource requires a certain fee to access them.

There existed apathy and neglect, as some respondents declined from filling the rating scale while a few refused to return the instrument. Transportation also affected the work as the researcher had to shuttle from place to place in order to get relevant information.

Based on the findings of the study, the following limitations were also noted, that could limit the generalization of the findings:

1. The use of only undergraduate respondents may also limit the finding of the study because other groups such as librarians and university management could have provided more valid information on the extent of availability and utilization of ICT-based library resources.

2. The use of only one university for the study may have limited the generalization of the findings. This is because a larger population may have generated more responses from larger respondents.

5.6 Suggestion for further studies

Having undertaken a study on availability and utilization of ICT based library resources by undergraduate students of Rhema University, Aba and as a result of research being a continuous

process, and also based on the limitations of the present study the following the following suggestions were made for further studies;

1. Further research in this area should be undertaken with more universities included in the study and hence, a larger sample size to enable greater confidence in generalization of results.

2. Since a private university was used for this study, there should be replication of the study in other state and federal university libraries in Nigeria where they have not been studied.

3. The Study of User's Awareness of ICT based library Resources Available in Academic, Public, National or Special libraries.

4. Effect of the Use of ICT facilities on the Academic Performance of University Undergraduate in South-Eastern Zone of Nigeria.

5. Effective Public Relations for Qualitative Use of ICT facilities in Academic Libraries in Abia State, Nigeria

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