ELECTRONIC RESOURCES ACCESSIBILITY, ICT SKILLS AND ENVIRONMENTAL FACTORS AS CORRELATES OFUNDERGRADUATES' ELECTRONIC INFORMATION RESOURCES UTILISATION IN FEDERAL UNIVERSITIES IN NORTH-CENTRAL NIGERIA

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CERTIFICATION

This is to certify that this work was carried out by Abdullateef Babatunde Oshinaike under my supervision in the Department of School Library and Media Technology, Faculty of Education, University of Ibadan, Ibadan, Nigeria.

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DEDICATION

This study is specifically dedicated to Almighty Allah, without Him l can do nothing. It is also dedicated to my beloved late parents, Abdulhammed Adenugba Oshinaike and Mama Afusat Ashabi Oshinaike for their love, vision,support and encouragement. May the Almighty have mercy on them.

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ABSTRACT

The utilisation of electronic information resources in tertiary institutions cannot be underestimated because of its potential in enhancing the quality of teaching and learning. In spite of the versatility of these resources, observations have shown that there was low utilisation of these resources among undergraduates in North-Central Nigeria. Previous studies largely focused on electronic resources accessibility, ICT skills and environmental factors of lecturers without much attention paid to undergraduates. This study, was therefore, carried out to investigate electronic resources accessibility, ICT skills (computer management, computer application and Internet search and use skills) and environmental factors (learning environment and physical infrastructure) as correlates of undergraduates' electronic information resources utilisation in federal universities in North-Central Nigeria.

The study was anchored to the Unified Theory of Acceptance and Use of Technology developed by Venkatesh, Morris and Davis, while the survey design of correlational type was adopted. The multistage procedure was employed. At the first stage, all the conventional federal universities in North-Central Nigeria: University of Abuja, University of Jos, University of Ilorin, Federal University Lokoja and Federal University Lafia, were purposively selected without the specialised ones. Three faculties and two departments common to the universities were selected: Arts - (English and History) - Science (Chemistry and Mathematics); and Social Sciences (Economics and Political Science). The proportionate-to-size sampling technique was used to select 20% of the undergraduates from each of the departments, making a total of 1258. The instruments used were Electronic Resources Accessibility (α = 0.71), Computer Management (α = 0.78), Computer Application (α = 0.81), Internet Search and Use Skills (α = 0.83), Learning Environment (α = 0.79), Physical Infrastructure (α = 0.82) and Utilisation of Electronic Information Resources (α = 0.85) scales. Data were subjected to descriptive statistics, Pearson's product moment correlation and Multiple regression at 0.05 level of significance.

The respondents' age was 25.50 $\pm$ 2.42 years, and 50.4% were male. Electronic resources accessibility (r = 0.78), computer management (r = 0.56), computer application (r = 0.41), internet search and use skills (r = 0.32), learning environment (r = 0.29) and physical infrastructure (r = 0.33) had significant positive relationships with electronic information resources utilisation. Electronic resources accessibility, ICT skills and environmental factors jointly contributed to electronic information resources utilisation ($F_{(3;921)}$ = 11.95, Adj. R^2 = 0.59), accounting for 59.0% of its variance. Electronic resources accessibility (β = 0.48), computer management (β = 0.39), computer application (β = 0.42), Internet search and Use skills (β = 0.32), learning environment (β = 0.44) and physical infrastructure (β = 0.38) significantly contributed to electronic information resources utilisation.

Electronic resources accessibility, computer management, computer application, Internet search and Use skills, learning environment and physical infrastructure determined electronic information resources utilisation among undergraduates in federal universities in North-Central Nigeria. Therefore, university managements, library administrators and librarians should give congnisance attention to ensure effective utilisation of electronic information.

Keywords: Electronic information resources, Undergraduates' ICT utilisation, Internet use and search skills, Federal universities in North-Central Nigeria

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CHAPTER ONE
INTRODUCTION

1.1 Background to the study

The emergence of Information and Communication Technology (ICT)has brought developmentsto the education sector, which has resulted to the application of computers to information processing and dissemination. The advent of ICT has also resulted in tremendous changes in academic communities as different categories of personnel in universities are leveragingthe capabilities of technology to access information such as the Electronic Information Resources (EIRs). EIRs are electronic representations of information which are usually available in diverse forms such as electronic books, digital information resources, electronic journals, electronic databases, electronic magazines, electronic-learning tutors and online tests.

EIRs entail information resources that must be used with electronic devices like personal computers (PCs), laptops, palmtops, tablets, DVD, VCD, CD-players, projectors, i-pods, i-phones, i-pads, the Internet, WAN/LAN networks, among other digital tools. In the same vein, electronic journals, electronic books, electronic magazines, electronic newspapers and electronic theses are EIRs that could be useful for academic and research activities. Libraries, media centres and the entire university community are increasingly relying on the capabilities of EIRs to access relevant information for personal and societal development, since these learning resources can be accessed across geographical regions of the world. EIRs motivate undergraduates to learn, as these digital resources afford students the opportunity to search, acquire, share, download academic materials and disseminate necessary information. These resources equally provide recent information for research, as EIRs are updated more often than printed materials. This is a major advantage of EIRs over print resources.

It is important to note that EIRs cater for the diverse learning and research needs of lecturers, students and other stakeholders within the university system. However, as teaching-learning process is becoming learner-centred across all levels of education, higher education system is increasingly focusing on the provision of relevant learning resources to engage learners in classroom activities. These undergraduates require unhindered access to qualitative educational resources, to

equip them with requisite skills and competences to function effectively in modern society. EIRs provide the 21st-century undergraduates with educational opportunities that were not available to the previous generation of students.

These resources promote access to up-to-date information without restrictions. From experience, undergraduates encounter some difficulty in accessing information resources in libraries with only paper-based materials for their studies and research activities. Consequently, university libraries now promote the acquisition and integration of EIRs, which can be accessed via the internet with a view to improving information collection, organisation and dissemination. Obviously, university libraries may not be able to satisfy their users with only printed information sources in this 21st Century schooling system (IFLA, 2012).Libraries have transformed into digital and virtual libraries where books, journals and magazines have changed into e-books, e-journals, and e-magazines. This has increased the global dissemination of information (Abinewand Vuda, 2013; Luka, 2015). Thus, there is a need for institutions at higher level to engage the capabilities of these internet-based resources to ensure that undergraduates would be able to utilise the materials for academic activities.

It should be noted that electronic resources utilised in Nigerian universities include CDROM, the Internet and other internet-based resources that have the capabilities ofoffering a variety of references and information to different categories of users. These EIRs permit off-line and online access to information available on CDROM databases, the Internet and online databases. The specific examples of these resources are CDROM databases, OPAC, electronic journals, electronic books, OARE, EBSCOHOST, JSTOR, DOAJ, AJOL. These resources can be accessed on the World Wide Web (www), over the library networks and from stand-alone terminals.These resources have the capabilities of enhancing students' learning and research activities within the learning space.

However, it has been found outthat these internet resources are not being fully utilised, especially among Nigerian undergraduates. In a study carried out at the Obafemi Awolowo University, Nigeria, by Oyedapo and Ojo (2013) it was found out that undergraduates under-utilised electronic information resources provided by the school library and the main reason for the under-utilisation was poor searching skills.Yearly, enormous spending in terms of money, human resources and time is incurred on acquisition and management ofEIRs in university libraries. The significant impact of EIRs acquisition on the budgetary provision of the education

sector has made it necessary to examine the systematic utilisation of these resources in enhancing teaching-learning process at different levels of education, especially among the undergraduates. Scholars have been consistently advocating for the need to prioritise factors that could hinder effective utilisation of EIRs within the learning spaceas no effective learning could take place without the support of various electronic resources in the school system.

In the developing countries of the world, especially in Sub-Sahara Africa, the low level of development and limited resources at the disposal of governments necessitate the need to examine the rate of utilisation of these capital-intensive investments among the students. This affords governments at all levels the opportunities to re-direct their limited resources to the more productive acquisitions in the sector. It has been found out that many of the university libraries are being confronted with the challenges of under-utilisation of e-resources among undergraduates in Nigeria. Many of the libraries are usually confronted with responsibilities of making students, particularly undergraduates, get to know of the availability of e-resources within the maximum use.

It is important to note that the utilisation of EIRs can be examined in terms of the purpose of use and frequency of utilisation. Undergraduates can utilise these learning resources for different purposes and the frequency of use varies based on different factors like accessibility, ICT skills among others. This has been established across the world and experts believe that the purpose and frequency of use of these resources can influence the level of utilisation, especially at the higher education system.In Pakistan, Ansari and Zuberi (2010) found out that many undergraduates use EIRsto cater for their research needs, whileothers also use them to execute assignments, prepare for examinations and to acquire knowledge on specific concepts.

Within the context of Nigerian educational system, Alhassan and Macaulay (2015) affirm that electronic information resources like the internet, e-mail, online databases, electronic databases and electronic journals were frequently utilised by the undergraduates for online application/registration, research, communication with friends and colleagues, sourcing materials for project writing, completing assignments. The study concluded that EIRs like CD-ROM databases, electronic journals, Online Public Access Catalogue (OPAC) and electronic books were rarely used by the students especially for research purposes.

The issue of under-utilisation of e-resources in the university libraries has a

way of demanding accountability from library management to justify huge investment in these important learning resources. It is obvious that undergraduates might not have enough time to read through the pages of print materials and this could improve the use of e-resources for research, course work and a host of other personal and instructional tasks by different categories of undergraduates in the university (Pandurangaswamy and Kishore, 2013). The electronic information resources are very vital information resources to the higher institution of learning with great value and importance as effective educational tools that offer flexibility of format that include the use of graphics. Even with the availability of EIRs in the system, under-utilisation of these materials would not afford undergraduates the opportunities to maximise the benefits derivable from the resources. This makes the issue of utilisation central to the planning and implementation of education resources programmes across all levels of education, especially in the higher institutions.

There is a need for workable procedures in order to reduce active use of educational resources among undergraduates. Stakeholders in higher education need to give due consideration to the issues surrounding effective utilisation of EIRs to ensure that undergraduates students have access and ability to leverage the capabilities of these learning materials so as to enhance learning and research activities. Regardless of the capabilities of educational resources within the educational setting, the instructional impact cannot be felt unless students are able to use the materials as well as develop appropriate skills and knowledge that would make them respond positively to the needs of the community. This is why experts in information system are advocating the need to ensure that undergraduates have the capabilities to utilise available learning resources to support teaching and learning process.

The utilisation of EIRs by the undergraduates would determine, to a large extent, effectiveness of these learning resources within the educational setting. The impact of learning resources would be noticeable, if the undergraduatesare able to utilise the materials to get relevant information that would improve their learning outcomes and promote their critical thinking skills. Undergraduates within the learning space should be able to use EIRs for instructional purposes which promote active engagement with the content. This would result in improved learning outcomes among thestudents, who require these resources to promote learning and research. Specifically, studies have indicated that undergraduates in Nigerian universities are

not able to effectively utilise these resources for learning and research.

Scholars all over the world have examined the extent of utilisation and effects of electronic resources on the facilitation of instructional process at all levels of education. Previous studies have concentrated on the extent of utilisation of EIRs in the educational system and the instructional impact of these web-based tools on the performance of students in classroom tasks. However, what remains unclear are the impacts of environmental and students-related factors on the effective utilisation of EIRs among Nigerian undergraduates. The effective utilisation of electronic information resources for instructional activities could be hindered by several factors and these variables need to be duly considered in the planning and implementation EIRs, especially at the higher level of education. Evidences abound in literature that several environmental and student-related factors could hinder technology utilisation in education setting, including library services. Several studies have equally examined the impact of some of these factors on the utilisation of EIRs in higher education.

However, relationships that exist among these variables and the utilisation of EIRs have not been properly examined within the context of Nigerian educational system, especially in North-Central Nigeria. NorthCentral geopolitical zone in Nigeria was formerly known as 'the Middle Belt'.The Middle Belt was broken up into smaller states under the military regime in 1967, resulting in seven states. The states in North Central geopolitical zone include Benue state, Nasarawa state, Kogi state, Niger state, Kwara state, Plateau state, and Federal Capital Territory, Abuja.

There is a strong need to examine the influence of some critical factors that could hinder the use of EIRs by the undergraduates, especially in this part of the world.Many factors have been established in literature as strong predictors of technology use in teaching-learning process. For the purpose of this study, electronic resources accessibility, ICT-skills and environmental factors have been selected as critical variables that could influence students' utilisation of EIRs in the universities. These factors were selected based on their strategic impacts on any technology utilisation efforts in the education systems across the world.

Accessibility, in the context of this study, can simply be defined as the process of providing students with access to electronic learning resources in appropriate formats and technologies at the right time. In other words, it has to do with the removal of restrictions to students' free access to these learning resources within the learning space. Accessibility to electronic resources remains a fundamental parameter

to measure undergraduates' level of utilisation of EIRs in higher institutions of learning. Since accessibility would enhance usability and effectiveness in the use of EIRs for learning and research activities, it becomes imperative to examine its relationship with undergraduates' extent of utilisation of EIRs in this part of the world. Having unhindered access to relevant resources is highly fundamental to undergraduates in pursuance of their studies in the university (Sivathaasan, Murugathas and Chandrasekar, 2014). Accessibility remains a critical factor that influences the level of use of technology in teaching-learning process (Lederman, 2017).

Accessibility of EIRs has been a central point towards the utilisation of the resources and a critical determinant in the viable use of EIRs to help and enhance research and education. Also, in the Nigeria education setting, Tofi and Fanafa (2019) found out that poor internet connectivity limited subscribed titles, power outages, difficulty to access and use, lack of relevant e-resources in various disciplines as well as no assistance from the library staff hinder the level of accessibility to EIRs by the undergraduates of the Federal University of Agriculture, Markudi, Nigeria.

The value of EIRs in education could easily be manifested by giving undergraduates adequate access to these learning resources within the instructional space, such that the students would be able to understand the capabilities provided by EIRs and thereafter leverage these abilities to facilitate learning and research activities. It is important to note that EIRs hold the key to recent and up-to-date information that students require to function effectively within their communities and become productive global citizens. Thus, undergraduates need to have access to these learning resources,relevant skills and knowledge in order to act productively within the social system. This would promote learners' interest in the instructional content and improve their learning outcomes in different areas of specialisation. Urhiewhu (2014) affirms the need for a workable framework that focuses on developing functional EIRs inuniversity libraries, so as to promote access to relevant information by the students.

Accessibility of EIRs is considered a major factor as libraries of the 21st century must provide various access points for numerous users to access collections without hindrance of any kind. Accessibility to information resources remains a critical factor to be considered in the adoption and usage of EIRs by the students, especially at the higher education level. Thus, accessibility is a key factor that could

influence the use of technological resources in general and EIRs in particular, especially at the higher level of education. The use of EIRs among undergraduates is influenced by the extent to and the degree of accessibility to such resources. This is because particular users would prefer resources that are easily accessible to facilitate learning. The ease of location would also determine whether an undergraduate would use EIRs for academic and research activities or not, and it is expected that easy access to EIRs would increase the tendency to use such resources (Nyabame and Nzuki, 2014). Thus, the functionality of libraries and information seeking habit of undergraduates could depend largely on the extent of accessibility of these important resources within the learning space. This makes accessibility and utilisation of EIRs to occupy strategic place in research in universities worldwide.

Closely related to the issue of accessibility is location of access, which is one of the indicators of measuring accessibility to learning resources. It has become imperative to consider where will undergraduates access these important resources to support learning and research. The geographical location of EIRs can influence the rate of accessibility to these resources in the education setting. Adeniran, (2013) affirms that the location of access to various library resources can determine how undergraduates will access them for learning and research purposes. The study concluded that some of the critical factors that hinder accessibility to EIRs are large mass of irrelevant information, the need to filter the results from search, download delay, failure to find information and inadequate search skills and geographical/location restrictions.

Beyond the issue of accessibility, other factors have been identified by scholars as determinants of the use of technology in instructional process and these can also influence effective utilisation of EIRs among students in higher education across the globe. Evidences abound in literature that there exists a strong nexus between students' ICT skills and the way technology is utilised to facilitate learning. Students' ICT skill remains a strong factor that could impact the extent of utilisation of EIRs among undergraduates. ICT skills are generally considered as the technological competences required of a user to effectively utilise ICT-related tools or platforms. It is important to stress that the 21st century has brought a new dimension totechnological innovations,which are affecting all sectors of human endeavours, particularly education sector. This also affects library services and users, especially undergraduates need to develop these critical skills to effectively utilise EIRs for

research and learning purposes (Adeniran, 2013;Kumar and Reddy, 2016). Inadequate use of EIRs has been linked to lack of ICT skills and this has made accessibility more challenging for information managers and the students at large.

Consequently, undergraduates would need to acquire new skills in the use of electronic information resources for quality and efficient information search strategy (Dada and Eghworo, 2020). It is noteworthy that ICT skills have become critical points in undergraduates' pursuits of knowledge in any field of endeavour. Thus, it is expected that undergraduates with requisite ICT skills would be able to navigate the electronic information resources and would leverage the capabilities of these internet-based resources to facilitate learning, studying and research activities within and outside the school setting.

Essentially, ICT skill is increasingly becoming an important factor that could influence the pursuance of a degree qualification, and this will affect how undergraduates manipulate these EIRs for learning, research and social life. Thus, the onus lies primarily on the institutions of higher learning to ensure that undergraduates are equipped with relevant ICT skills so as to function effectively in the society. These skills are strategic to effective utilisation of EIRs, as provided by libraries and media centres across different higher institutions of the world. More importantly, 21st Century students require ICT skills before they can actively partake in diverse areas of human activities. Thus, undergraduates require adequate skills to participate actively in different instructional tasks within the school system. This makes ICT skills to be strategic in the utilisation of EIRs by students at different levels.

In other words, undergraduates need to be ICT compliant in order to interact with EIRs and use the materials to enhance teaching-learning process. Studies have shown that ICT skills of undergraduates could influence the extent of utilisation of electronic information resources at the higher level of education. Three ICT skills have been identified in literature as critical skills that should be acquired by students to effectively utilise EIRs. These ICT skills include: computer management skills, computer application skills and internet search skills. Computer management skills have to do with the ability to perform basic operations on the computer like typing, editing, saving and so on. Computer application skills require competencies to utilise computer tools in solving problems. Lastly, internet search and use skills have to do with the competencies required to surf the internet and search for relevant learning resources for learning and research purposes.

Furthermore, EIRs have been touted as indispensable tools in learning and research at the higher level of education. However, to make good and effective use of a wide range of electronic information resources within the learning space, students need to acquire relevant ICT skills. It is very important for the libraries, documentation centres and ICT centres to justify the investment on e-resources, by examining the students' skills to effectively access the available resources for educational purposes. The challenges in the effective use of electronic resources among undergraduates include lack of ICT skills, lack of support from institutions, low bandwidth and limited resources, among others. The electronic resources are seen by undergraduates as unavailable instruments for learning and research. The library and other information centres have a great role to play for users, particularly undergraduates, with a view to developing interest in using electronic resources. To achieve this, there is a need to examine the ICT skills of the users, with a view to ensuring that adequate recommendations are made for effective utilisation of electronic resources within the instructional process. This makes ICT skill a strong factor in the planning and implementation of technology programme at different aspects of education systems across the globe. Ojeniyi and Adetimirin, (2016) found that there was a positive significant relationship between ICT literacy skills and EIRs in the library.

Apart from the prerequisite skills that students need to acquire for effective utilisation of e-resources in teaching-learning process, scholars (Adeniran, 2013; Kumar, and Kumbar, 2013)have advocatedthe need to consider the myriads of environmental factors that could influence the use of technology within the learning space. Hoffmann (2015) opined that environment is the space surrounding a human being which also exerts impact on him and influences his living conditions. Within the university setting, the environmental factors are the non-living factors that can affect users' interest in using the library resources. They include: libraries, bookstalls, cyber cafes, social activities, lecture rooms, relaxation centers and lecturers teaching methods (Ogechi, Okorie, and Akanwa, 2018). These factors have been found to have influences on the utilisation of library resources, including EIRs. While they can attract users to the library, they can also make or force users to dislike the use of the library. This makes environmental factors to be crucial indicators of effective utilisation of EIRs, especially among undergraduates.

The International Federation of Library Association (IFLA)(2012) affirms that

there are minimum acceptable standards that regulate the provision of information facilities by libraries across different institutions in the world. This global organisation emphasises that facilities like reading tables should be made adequate enough for users; sitting chairs should be appropriate for the physical and psychological needs of the users as well as book shelves and library space. Babalola (2012) asserts that environmental factors are the external forces that impede the use of information resources in the library like social interaction, power supply, physical facilities (classrooms), lighting level (natural light), motivation, etc. Other external factors include natural disasters like; earthquakes, volcanoes and forest fires, climatic conditions (harsh sunlight, flood and humidity), social activities, rodents (cockroaches, termites, centipedes, snakes etc.). understanding these factors is crucial to the effective utilisation of EIRs within the library setting. Apparently, environmental factors that influence electronic resources utilisation range from conducive reading environment, supporting infrastructural facilities, availability of power to well-trained library staff.

These facilities would go a long way in ensuring that undergraduates are afforded the opportunity to learn and carry out research activities in an enabling atmosphere. This kind of atmosphere is critical to engaging learners in instructional content and promoting deep learning among the undergraduates. It is important to note that undergraduates require library resources to be equipped with relevant skills and knowledge that make themproductive in the community and contribute to the global economy. Thus, it is imperative to ensure that the library system is equipped with the required facilities that would give room for seamless learning and research activities among different categories of undergraduate students within the learning environment. In other words, these facilities are pre-requisites to effective utilisation of EIRs within the learning space. Library system with adequate supporting facilities like lightning system, fans, computers and others would encourage and stimulate students to interact with the content and retrieve relevant information for learning and research purposes. It has been argued that these supporting facilities hold the key to effective accessibility and usage of available learning resources within the library system across different levels of education.

From the foregoing, it can be deduced that factors such electronic resources accessibility, ICT skills and environmental factors are critical factor to be considered in the utilisation of electronic resources byundergraduates. Consequently, the study

was carried out to investigate the extent to which EIRs accessibility, ICT skills and environmental factors correlates with the use of EIRs by undergraduates in Federal Universities in North-Central of Nigeria.

1.2 Statement of the problem

Electronic information resources facilitate access to and use of information resources without restricting the users on the basis of location, funds, information obsolescence and so on. These resources also provide links to other web-based tools that could be beneficial to theundergraduates in their academic pursuits. EIRs had been touted as veritable tools that could be used by students in higher education to enhance learning and research activities. University libraries and media centres across the globe invest heavily on the acquisition of appropriate EIRs to improve teaching-learning process and equip students with relevant skills and competences to function effectively in modern society. Despite the availability of electronic information resources and their benefits to undergraduates in Nigerian universities, evidences abound in literature that these important internet-based resources are not being fully utilised by the undergraduates in Nigerian universities. Reports from academic activities of the undergraduates in the Nigerian universities revealed some noticeable manifestations of some challenges arising from under-utilisation of electronic information resources within the learning space. This constitutes a major impediment to the effective library services in the universities across Nigeria.

Previous studies have concentrated on the extent of utilisation of electronic resources that are provided by university libraries to facilitate effective learning and research activities among the students. However, there is a strong need to examine the relationship that could exist between some critical factors like accessibility, ICT skills and environmental factors and the extent of utilisation of EIRs by students in the universities across the country. There seems to be a paucity of research in the area of examining the relationshipbetween the independent variables (accessibility, ICT skills and environmental factors) and the dependent variable (utilisation of EIRs among undergraduates) especially in North-Central region of the country. Consequently, this study investigated electronic resources accessibility, ICT skills and environmental factors as correlates of usage of EIRs by students in Federal Universities in North-Central, Nigeria.

1.3 Objectives of the study

This study investigated the correlation between electronic resources accessibility, ICT abilities and environmental factors alongside the usage of EIRs by undergraduates in federal universities in North-Central geo-political zone of Nigeria. Specific objectives of the study were to:

i. ascertain electronic resources accessibility level to EIRs by undergraduates in federal universities in North-Central Nigeria;
ii. ascertainthe access points to EIRs use by the undergraduates in federal universities in North-Central Nigeria;
iii. examinethe level of ICT skills possessed by undergraduates in federal universities in North-Central Nigeria;
iv. find out the environmental factors that can influence the use of EIRs in federal universities in North-Central Nigeria;
v. identify the types of EIRs available in federal universities in North-Central Nigeria;
vi. find out the purposes of EIRs use by undergraduates in federal universities in North-Central Nigeria;
vii. examinethe frequency of EIRs useby undergraduates in federal universities in North-Central Nigeria;
viii. identify constraints to EIRs usage by undergraduates in federal universities in North-Central Nigeria;
ix. investigate the relationship between the independent variables and dependent variables in federal universities in North-Central Nigeria;
x. examine the joint contribution of electronic resources accessibility, ICT skills and environmental factors to usage of EIRs by undergraduates in federal universities in North-Central Nigeria; and
xi. find out the relative contributions of electronic resources accessibility, ICT skills andenvironmental factors to utilisation of EIRs by undergraduates in federal universities in North-Central Nigeria.

1.4 Research questions

The under-listed research questions, derived from the objectives were answered in this study:

1. What is the level of accessibility to EIRs by undergraduates in federal universities in North Central , Nigeria?
2. What are the points of access to EIRs by undergraduates in federal universities in North Central , Nigeria?
3. What is the level of ICT skills possessed by undergraduates in federal universities in North Central, Nigeria?
4. What are the environmental factors that can affect the use of EIRs available in

federal universities in North Central, Nigeria?

5. What are the types of EIRs available in federal universities in North Central Nigeria?
6. What are the purposes of usingEIRs by undergraduates in federal universities in North-Central?
7. What is the frequency of usingEIRs by undergraduates in federal universities in North Central, Nigeria?
8. What are the constraints to the use of EIRs by undergraduates in federal universities in North Central, Nigeria?
9. What is the joint contribution of environmental factors, ICT skills and accessibility on the utilisation of EIRs by students in federal universities in North Central, Nigeria?
10. What are the relative contributions of environmental factors, ICT skills and accessibility to the utilisation of EIRs by undergraduates in federal universities in North Central, Nigeria?

1.5 Research hypotheses

The following null hypotheses were tested at 0.05 level of significance:

Ho1: There is no significant relationship between accessibility and the utilisation of EIRs by undergraduates in federal universities in North Central Nigeria.

Ho2: There is no significant relationship between ICT skills possessed by the undergraduates and the utilisation of EIRs by undergraduates in federal universities in North Central Nigeria.

Ho3: There is no significant relationship between environmental factors and the utilisation of EIRs by undergraduates in federal universities in North Central Nigeria.

1.6 Scope of the study

The study concentrated on the correlation between the electronic resources accessibility, ICT skills and environmental factors and utilisation of EIRs by undergraduates in the federal universities in North-central geopolitical zone, Nigeria. The study covered the five conventional federal government-owned universities located in the region. These universities are University of Abuja, FCT, Abuja; University of Jos, Plateau State; Federal University, Lafia, Nassarawa State; Federal

University, Lokoja, Kogi State; and University of Ilorin, Kwara State. The Federal University of Agriculture, Makurdi, Benue State and the Federal University of Technology, Minna, Niger State were excluded because they are specialised universities. It is believed that the selected universities operate the same educational curriculum and their facilities could be measured uniformly. This provided the baseline assumption for the study.

The respondents in the study were limited to 200-400 level undergraduates in the selected universities. The 100 level students were excluded because they were considered fresh and might not have adequate information about the topic of investigation. ICT skills investigated in this study were skills for using file management, computers and accessories, accessing and use of search engines, and accessing e-databases, among others. On the issue of access to electronic information resources, the study investigated the extent of accessing and utilisation of electronic information resources; locations of access. Environmental factors considered in this study included the cost of connectivity, accessibility to reliable electricity, availability of trained personnel, and an institutional policy that supports EIRs usage. The physical infrastructure considered include conducive environment, available seating facility, lightning, adequate policy support and institutional readiness. On EIRs usage, the study focused on specific purposes for which undergraduates used EIRs as well as the extent to which they made use of the resources. EIRs considered in this study are electronic books, electronic journals, e-magazines, reference works in electronic format such as e-dictionaries, CD-ROMs, e-databases, e-research reports, online catalogues and electronic theses.

1.7 Significance of the study

. The study would be beneficial to university management, to understand the level of utilisation of EIRs within the library system. It could also serve as a blueprint to university management, to determine the status of ICT skills among undergraduates in tertiary institutions in Nigeria. In this wise, the management would be a better position to understand likely factors that could hinder effective utilisation of EIRs and put necessary instruments in place to cater for all these factors in the planning and implementation of EIRs in the library.

It could also provide relevant information for library management, and librarians to take accurate decisions concerning the issues of effective utilisation of EIRs to support learning and research. This will help the library management to identify the skills required by the undergraduates to utilise EIRs and make appropriate

recommendations to the university management on the way to improve the technology competence of the students and staff. This is expected to result to improve utilisation of these learning resources by the undergraduates.

Also, this study could be an eye-opener for the undergraduates in the universities on the available EIRs that could assist them in their academic pursuits. Undergraduates will be able to understand the type of learning resources available in the library and how to effectively utilise these EIRs for learning and research. This is expected to have significant impact on the level of utilisation of EIRs among undergraduates in Nigerian universities.

In the same vein, the findingscould provide an insight into environmental factors that influence the use of EIRs by undergraduates in Nigerian universities, with a view to addressing issues related to these environmental factors. Those ones that could facilitate the use of EIRs would be made available while other environmental factors that may hinder the use of EIRs would be improved upon to facilitate and support the usage of EIRs in universities in Nigeria.

Findings on the relationships among the independent variables (environmental factors, ICT skills and accessibility) and dependent variable (EIRs use) in the study will provide information that could guarantee proper understanding of the influence that the independent variables might have on EIRs use and enable the proper management of university libraries to ensure the optimum utilisation of EIRs by undergraduates. Therefore, this study could provide insight into the extent to which environmental factors, ICT skills and accessibility contribute to the use of EIRs among undergraduates in Nigerian universities with the aim of proffering solutions to the challenges that may arise as a result of the contributions or lack of these factors to EIRs use. Consequently, these findings would form the basis for making recommendations that would encourage effective utilisation of EIRs by undergraduates in Nigeria universities.

1.8 Operational definition of terms

The following terms are defined as used in the study:

Accessibility to electronic information resources: refers to the easy access to EIRs by undergraduates in federal universities in North Central Nigeria.

Electronic information Resources: These are resources packaged in electronic formats. They require hardware to read its content and can be accessed in-house or remotely.

Electronic information Resources utilisation: This refers to the utilisation of electronic resources for academic and research activities by undergraduates in federal universities in North Central Nigeria.

Environmental factors: These include factors and conditions that promote the use of EIRs by undergraduates in federal universities in North Central Nigeria. They include ventilation, tables, chairs, air-conditioners, power supply, among others.

ICT skills: These are the knowledge and skills required by undergraduates to access and use ICT-based facilities and EIRs of the university libraries in the in federal universities in North Central Nigeria.

Utilisation: This is an act of EIRs applicationby undergraduates.

CHAPTER TWO

LITERATURE REVIEW

This chapter focuses on review of literature relevant to the study. The literature reviewed is both theoretical and empirical. The review covers the following:

2.1 Electronic resources use by undergraduates

Electronic resources popularly refer to information materials that could be viewed through the use of personal computer, mobile user device, and in some cases, remotely accessed through the Internet. The most frequently used of EIRs among the undergraduates include e-journals, e-books, full-text database, e-images, abstracting and indexing databases (International Federation of Library Association, 2012). They are one of the inventions of the 21stcentury which information communication technology has introduced into libraries, media and documentation centres. They

usually consist of online public access catalogue (OPAC), e-book, e-magazines, e-images, e-journals, e-articles, e-newspaper, e-thesis, and CD-ROMs, just to mention a few. These resources are increasingly providing relevant information to all categories of learners within the learning space.

Electronic information resources (EIRs) can also be described as those materials that are available only in electronic formats such as e-book, e-journals, e-magazines, the Internet, OPAC (Online Public Access Catalogue), online theses and dissertations, CD-ROM, etc. Mawere and Sai (2018) describes electronic resources as information resources that are maintained in electronic or computerised format and retrievable via electronic network or other electronic data-processing technologies. These online resources provide adequate and up-to-date information to students on different topics and concepts. Undergraduates require these online resources to boost learning and research in the academic setting.It is important to note that undergraduates are being prepared to solve myriads of problems anytime. Many of these students are expected to collaborate with other students across the world to solve global problems and make the world a better place for everyone to live. Therefore, undergraduates require relevant information and learning materials that would prepare them for the challenges of the modern society. These students need to be equipped with appropriate competences that would improve their functionalities in the society and the world at large.

It has been argued worldwide that electronic resources have the potentialof enhancing teachers' effectiveness and learning among students. The resources hold strategic position in teaching-learning process, especially with the increasing challenges posed by the modern information society. This implies thatelectronic resources could afford teachers, students and other educational stakeholders the opportunities to access enormous quantity of information in an easily accessible non-sequential format. In most instances, provision of EIRs might not automatically translate to effective teaching and learning, unless students are able to effectively utilise the materials to support classroom instructional tasks at all times. Effective utilisation of resources is strategic to teaching, learning and research. Available resources might not make any impact on instruction, unless students are able to utilise these materials to enhance academic activities. At the higher education level, there is a strong need to ensure that undergraduates have the capabilities and skills to put EIRs into maximum use within the school system. Ajayi, Shorunke and Aboyade (2014)

regard provision of appreciable quantity of electronic information materials as crucial to the delivery of library services and exchange of information, and thus, the effective utilisation needs to be monitored in order to ensure that the purpose of acquiring these resource are justified within the instructional system.It is important for education stakeholders to prioritise the effective utilisation of these internet-based resources so as to support students' learning at the higher level of education (Alhassan and Macaulay, 2015).

Experts are promoting the need to give due consideration to effective utilisation of electronic resources by the students, as investments in these resources are capital-intensive and require systematic planning and implementation; (Kinengyere, George, and Bernard, 2012). With the huge investment on the educational resources across the world and the potentials these materials have in enhancing teaching-learning process, it is imperative for governments at all levels to make adequate provision for veritable frameworks that would ensure seamless utilisation of EIRs for academic activities by the undergraduates. When these resources are made available within the instructional space, it is paramount to encourage effective utilisation among the students, with a view to ensuring that educational resources are put into maximum use so as to enhance learning and research among the undergraduates. Stakeholders in education need to encourage undergraduates to make effectiveuse of EIRs in order to support classroom activities. There is a limit to the volume of information to be provided in the class by the lecturers, and the onus lies on the undergraduates to complement classroom instruction with effective utilisation of available EIRs within the education system.

In other words, EIRs are being acquired in tertiary institutions in relation to discipline and curricular needs. Also, universities are able to provide 24 hours service through electronic information resources. The service permits flexibility of search and user's convenience of multiple accesses to users, full-text searches and fast delivery of information. For instance, through digital libraries, undergraduates can have access locally to electronic information through the Internet. The evolvement of information resources from print to electronic affords information users, media centres and undergraduates the opportunity to use several techniques to search for and access information (Ani, Ngulube and Onyancha (2015). Ukpebor (2012) reiterates that relevance of electronic information resources to the users in the higher institution of learning could not be over-emphasised. He affirms that electronic information

resources provide accurate and timely information to undergraduates who largely depend on these resources for information to advance their intellectual work and research. There is no doubt that the provision of electronic information resources to enhance undergraduates' learning has brought a remarkable advancement in the education systems across the globe.

The providers of information in the education system like libraries, ICT centres, documentation centres and media centres need to ensure that undergraduates are encouraged to put these resources into use when provided within the learning space. Effective utilisation of EIRs would go a long way in equipping undergraduates with requisite skills and knowledge to participate actively in the development of the society. In this way, students would be able to access current and relevant information that would allow them to contribute to the development of critical sectors of the society. Thus, it is highly imperative for education stakeholders to give due consideration to the utilisation of EIRs when planning for the acquisition of these resources within the instructional system. The investment in EIRs can only be duly justified if undergraduates utilise these materials to enhance teaching and learning process.

Millawithanachchi (2012) points out that information centres, ICT centres, documentation and media centres are making frantic efforts to satisfy the undergraduates' information needs, but this had been marred by under-utilisation of these resources by the students at the higher level of education. The author concludes that despite the inestimable advantages and benefits of e-resources to effective teaching-learning process, undergraduates in North-Central Nigeria do not utilise the e-resources for their academic and research endeavours. Interestingly, few or little attempts have been made to study the state of the use of e-resources in North Central universities. It has also been found out that many of the university libraries are being confronted with the challenges of under-utilisation of e-resources among undergraduates in Nigeria. Many of the libraries are usually confronted with the responsibilities of making students, particularly undergraduates, get to know of the availability of e-resources within the system, and recognise proper channels that encourage students to put the facilities to maximum use. The issue of under-utilisation of e-resources in the university libraries has a way of demanding accountability from library management- to justify huge investment in these important learning resources. It is obvious that undergraduates might not have enough time to read through the

pages of print materials and this could improve the use of e-resources for research, course work and a host of other personal and instructional tasks by different categories of undergraduates in the university (Pandurangaswamy and Kishore, 2013). Thus, the electronic resources are very vital information resources to the higher institution of learning with great value and importance as effective educational tools that offer flexibility of format like the use of graphics (Mitchell, 2011). Even with the availability of EIRs in the system, under-utilisation of these materials would not afford undergraduates the opportunities to maximise the benefits derivable from the resources. This makes the issue of utilisation central to the planning and implementation of education resources programmes across all levels of education, especially in the higher institutions.

There is a need for workable procedures that would engender effective utilisation of educational resources among the undergraduates. Stakeholders in higher education need to give due consideration to the issues surrounding effective utilisation of educational resources to ensure that learners have access and ability to leverage the capabilities of these learning materials in order to enhance learning and research activities. Regardless of the capabilities of educational resources within the education setting, the instructional impact cannot be felt unless students are able to use the materials to develop appropriate skills and knowledge that would make them contribute to the growth and development of their immediate communities and the world at large. This is why experts in information system are advocating the need to ensure that learners have the capabilities to utilise available learning resources to support teaching and learning process. Utilisation would determine, to a large extent, the effectiveness of EIRs in the instructional space. The impact of learning resources would be noticeableif the students use the materials to get relevant information that would improve their learning outcomes and promote their critical thinking skills. All categories of students within the learning space should also be able to utilise EIRs for instructional purposes so as to promote active engagement with the content. This would lead to improved learning outcomes among the students, especially the undergraduates who require these resources to promote learning and research.

Scholars across the world have examined the extent of utilisation and effects of electronic resources on the facilitation of instructional process at all levels of education. Alhassan and Macaulay, (2015), Gakibayo, Odongo and Obura, (2013) examined the impact of utilisation of EIRs on the participation of undergraduates in

different academic tasks. Previous studies have concentrated on the extent of utilisation of EIRs in the education system and the instructional impact of these web-based tools on the performance of students in classroom tasks. However, evidence abound in literature that effective utilisation of electronic resources for instructional activities could be hindered by several factors and these variables need to be duly considered in the planning and implementation of technology integration efforts, especially at the higher level of education. It is pertinent to mention that EIRs have a lot of impediments as undergraduates are being confronted with challenges such as different changing prices and management issues. Also, e-resources such as printed materials and information sources could not be physically present. EIRs also remain scattered, and as such,browsing and searching are not convenient for the undergraduates (Chandel and Saikia, 2012).

These learning materials are positive responses to the increasing demand for up-to-date information by undergraduates within the learning space. Considering the requirements and challenges pose by the 21st Century system, it might be quite inappropriate for students at all levels to rely solely on the print materials for study and research purposes. The limitations of the print resources make them inappropriate to satisfy the needs and aspirations of the 21st Century learners, who live practically in media-saturated environment. This makes EIRs to be indispensable in equipping learners with the knowledge and competences to function effectively in modern society. Kumar and Kumar (2008) assert that EIRs can be understood to be the most advance platform that provides relevant information and competences that could assist undergraduates learning and research and in the context of educational system, it is the most powerful tool ever invented in human history to support teaching-learning process. The authors further expressed that EIRs are becoming more and more important for the users of the libraries, especially the undergraduates who require relevant and up-to-date information to become active global citizens. Undergraduates, therefore, require access to a variety of information through the capabilities of EIRs within the education system. These resources are in line with the expectations of 21st Century learners, who require access to current and up-to-date information to become active members of the society.

Shariful (2012) defines electronic resources "as EIRs that that are accessible on the web within the school or outside the school environment. It basically allows users to access any kind if information regardless of distance or time. These online

learningresources have the capabilities to provide wide access to relevant and current information to different stakeholders in the university system for teaching, learning and research activities. The entire academic activities of the undergraduates could easily be enhanced with the capabilities provided by EIRs across all learning institutions.In a study carried out by Adeniran (2013) to examine EIRs collection in Redeemer's University Library, Ede, Nigeria, it was established that Internet sources, online databases, CD-ROM, OPAC (Online Public Access Catalogue) and e-journals are the main e-resources commonly used by the undergraduates. It was observed that undergraduates utilise these resources to complement classroom instruction and for research activities. The learning resources are meant to cater for all categories of students within the learning space. These resources are available in many institutions for undergraduates to access and optimally utilised for learning and research activities.

Electronic resources on different subjects are accessed electronically, usually within the library system by different categories of learners. EIRs can be a bibliographic or full-text databank that permits students to quest for appropriate progressions in their focus areas. Examples of the resources include electronic journals and online databases such as AGORA, JSTOR, EBSCOhost, AJOL, HINARI, Google Scholar, Medline/PubMed, Free Medical Journals, MD Consult, Wiley InterScience, Ovid, Psych INFO and Embase. Others are electronic books, locally-laden folder, websites, CD ROM electronic script, and indexing folders such as MEDLINE, and so on. These EIRs are predominantly for understanding and investigation drives. The resources provide detailed information to the students on different concepts in their areas of specialisation. Access to several EIRsis by subscriptions where institutions pay access fee to qualify their users to access and use them. Thanuskodi (2012) posits that EIRs are the electronic representations of information that could be useful for critical thinking and deep learning. For electronic information resources, time, space and cost are not major hurdles to users, especially the undergraduates in Nigerian universities. EIRs are becoming essential in the activities of undergraduates in scholastic and information practices. Undergraduates usually have access to these learning resources without any restrictions set by time and space as obtainable in the traditional print materials.

University libraries have to be adapted to the electronic environment as advised by Nwachukwu and Thaddeur(2015).Nwachuckwu and Thaddeur (2015)

report that for the university library to be at par with the level of development of their users, they have to fully recognise the fact that the world is living in virtual realities, and embracing EIRs would be the only means to meet the yearnings of all students in the universities. This implies that library systems are expected to leverage on the capabilities of EIRs to meet the instructional needs of their students. This would allow institutions to equip students with requisite skills and knowledge to contribute to the development of the society. Agbamuche (2015) describes electronic library environment as provision of library and information services in virtual realitythat is not affected by time constraints. Consequently, patrons of university libraries now anticipate access to desired resources on demand from diverse locations at any given time. Efforts are being made across different libraries in the world to ensure that undergraduates are provided with the opportunities to leverage on the capabilities of online resources like EIRs. This is toenhance learning and research activities and improve the critical thinking skills of the students. As it may be said that the benefits of any product would probably enhance the use of such product, the usage of electronic resources has provided new approaches to organising the didactic setting of tertiary establishments, novel conceptions of the instruction procedure and re-organisation of the learning environment to provide adequate access to current information at all times.

Electronic resources are valuable enquiry implements that balance the printed resources in a conventional library (Egberongbe, 2011). These learning resources provide adequate support for the print materials in libraries and documentation centres across different universities of the world. There is a limit to the degree of information that could be provided by the traditional print materials due to the increasing demand for information among diverse students in the school system. These students require diverse form of information to meet their instructional needs and therefore cannot totally rely on the information provided by the print materials which are restricted by time and space. The information gap that exists within the system could be bridged by the capabilities of EIRs with huge repository of information in order to cater for the immediate and future needs of the undergraduates. EIRs provide unrestricted access to large volume of information that could be used to complement instructional process. The information in EIRs can be found useful by all students in the school system, regardless of their peculiar characteristics. Undergraduates are increasingly relying on the capabilities provided by EIRs to obtain relevant information on different concepts

in their areas of specialisation. This allows students to access detailed information that enhances their learning and research endeavours.

EIRs are very essential and beneficial to students as they get access to relevant information that strengthens teaching-learning process.Okiki and Ashiru (2011) state that EIRs are products of ICTs and useful to learners and researchers all over the world. This indicates a strong nexus between EIRs and ICT skills of the users, since the resources are the direct products of technological innovations. These resources are internet-based and can only be accessed and utilised by users with adequate ICT skills and knowledge. The instructional benefits in using EIRs are based on the fact that these internet-based platforms came about as a result of long years of technological advancement in information system and the quest to expand access to information with little or no restrictions. The quest for access to huge volume of information brought about the advent of EIRs as a repository of diverse information that could serve people in different areas of specialisation. People in different disciplines are in need of information on different concepts, but the traditional library collections might not cater for these unprecedented demands on the part of various users. This necessitated the need for a platform that would afford users the opportunity to access large volume of learning resources and utilise such to execute various tasks. EIRs are meant to bridge the information gap that exists in the information system and allow for users to take advantage of the available resources to satisfy their information requirement in different organisations. This makes EIRs to have huge impact on the operations of different organisations across the globe.

In the context of teaching and learning, the influence of EIRs on the instructional system had been emphasized across different levels of education. The impact becomes more prominent at the higher level of education, where students require relevant skills and competences to function effectively within the learning space. At this level of education, EIRs make learning and research to become highly flexible and connected to real-life situations. With the availability of relevant information and resources to enhance learning activities, EIRs provide veritable platform for undergraduates and lecturers to access diverse information anytime, anywhere. This promotes democratisation of learning and encourages critical thinking skills of students in the system.

The increasing use of these learning resources in university libraries could be attributed to the fact that they usually contain current information which is highly

valued by different categories of users. The prominence and extensive possibilities of EIRs for common message transmissions, information access and instructional transfer to sustenance of instruction and investigation undertakings in tertiary didactic establishment is recognised globally (Thanuskodi, 2012). That is why scholars across the globe have advocated the need to prioritise adequate provision for EIRs and effective utilisation by the undergraduates within the instructional system. It hasbecome practically impossible for undergraduates to survive in this knowledge economy without the effective use of EIRs that support classroom activities and access detailed information on different concepts in their disciplines.

Sejana(2017) regards EIRs as valuable investigation apparatuses that supplement books in conventional library settings. He enumerated their benefits to include provision of contact to information that might be constrained to a user owing to geographic setting or funds, contact to supplementary up-to-date materials, and establishment of wide-ranging contacts to extra resources or connected subjects. Thanuskodi (2012) affirms that bulk of the respondents used EIRs on a weekly, daily and twice weekly basis. Few of the respondents used EIRs monthly. The study was conducted among the undergraduates of Annamalai University, India. Findings from the study further revealed that most of the respondents used EIRs for writing papers, studying their coursework, research work and to update their knowledge base so as to function effectively in the society. This implies that undergraduates rely largely on the capabilities provided by electronic resources to execute instructional activities. This gives the opportunity to obtain detailed information on different concepts to complement instructional content and facilitate teaching-learning process. Regardless of the frequency of use, a significant number of the students rely on EIRs to obtain relevant information that could be useful to solve their immediate instructional problems and future challengesOther studies revealed low level use of EIRs among the undergraduates in different universities of the world. Just as many users give glowing commendations for the extent of utility of electronic information resources, many other users have expressed only marginal satisfaction with EIRs provided by their libraries Shariful (2015) reports that even as the use of EIRs remains widespread among the undergraduates and that many higher education students relyon EIRs to get the desired and relevant information, the frequency and level of practical usage of EIRs is not commensurate with the amount spent in acquiring these resources. Their study was centered on the effective utilitsation and effect of EIRs at Guru Gobind

Singh Indraprastha University, India. Considering the huge investment in the acquisition of EIRs in different universities, there seems to the challenge of under-utilisation of these resources by the undergraduates. This is a major that should be jointly addressed by the critical stakeholders in the information system as acquisition of EIRs is capital intensive with serious burden on the budgetary provisions of the education sector. The implication is that library and university management need to give due consideration to thse rate of utilisation of these learning resources among the students.

Okiki and Asiru (2011) examined the factors that impact the use of online information resources among postgraduate and undergraduate students in six universities in the South-west Nigeria. The authors concluded that male respondents seemed to enjoy surfing the Internet for amusement purposes whereas feminine tended to use the Internet for occupational resolves. This implies that students could utilise online resources for diverse purposes including using them for instructional and un-instructional activities. The onus therefore, lies on the stakeholders to ensure that undergraduates are encouraged to utilise available EIRs in the library to complement instructional activities. Undergraduates require adequate information on how to effectively use these resources to enhance learning and research. EIRs are meant to provide relevant and up-to-date information to the students to equip them with appropriate knowledge and skills to become innovative and creative citizens in the country. This lofty objective can easily be realised if students are provided access to the materials and utilise them effectively for instructional activities.

Mamum (2013) found out that students from Bangladesh universities frequently utilise EIRs like e-thesis, e-books and e-magazines to support classroom instruction. The respondents opined that these learning resources provided unprecedented instructional benefits in the areas of learning and research. Afebende and Uyanah (2008) express that the essence of use of e-resources could therefore provide a handful platform and more opportunities for undergraduates as well as other community of users because it is certain that e-resources haveunprecedented advantages over the print resources.

Adeniran (2013) conducted a survey on the effective use of e-resources among undergraduates at Redeemer's University Library, Nigeria and reported that large majority of the respondents mainly used internet sources, online databases, online Public Access Catalogue (OPAC) as well as e-journal In the same vein, IIori and

Ifijeh (2010) reported that 94% of the final year undergraduates in the same university submitted that the internet had greater impact on their projects. This implies that a significant number of students believed that accessibility to internet resources is strategic to enhance research abilities of the undergraduates at all times. The resources provided by internet-based resources like EIRs is important for research activities as students have the opportunity to access huge volume of information and interact with other students across the world. This promotes cross-fertilisation of ideas and exchange of basic information that would broaden the horizon of the undergraduates in understanding issues from different perspectives. Many of these students rely on the capabilities of EIRs to solve their instructional and personal problems. This implies that EIRs provide students with opportunities to access relevant learning materials anytime, anywhere. Okiki and Asiru (2011) describe electronic resource as a means of learning and research processes in universities.

In a study conducted by Bassi and Camble (2011), it was reported that the internet remained the most highly used e-resources by undergraduates in university libraries in Adamawa State as signified by 392(41.05%) of 955 respondents. This was closely followed by 125 respondents (13.09%) that indicated regular use of e-journals. The high rate of usage of e-resources among the undergraduates at these universities was an indicator that necessary infrastructural facilities were made available by the management of media centres, documentation centres and libraries within the university system.

Ukachi (2015) carried out a study on use of e-resources in the Nigerian documentation centres, ICT centres and libraries and concluded that e-resources are not extensively utilised by undergraduates in Nigerian higher institutions for research and study. The study further attributed low ICT skills possessed by undergraduates as reason why they are not making adequate use of the e-resources. This implies that the rate of use EIRs is not commensurate with huge investment on the acquisition of these resources in the libraries. Thus, efforts should be geared towards adequate provision for resources and environment that would encourage effective utilisation of educational resources by the undergraduates to support classroom activities and engage in extensive research endeavours. This will contribute immensely to the realisation of the specific and general objectives of using EIRs in education system across the globe.

It is obvious that undergraduates might not have more time to browse through

the page of printed resources and this could systematically increase their level of utilisation of e-resources for assignment, research activities, course work and a host of other personal and instructional tasks (Pandurangaswamy and Kishore, 2013). The electronic resources are very vital information resources to the higher institution of learning with great value and importance as effective educational tools which offer flexibility of format that includes the use of graphics. (Mitchell, 2011). In the 21st century society, it has become practically unsustainable for academic institutionsto rely solely on traditional print resources to meet the diverse needs of users; hence, the investments in electronic information resources. Quadri (2012) supported this by emphasising that no tertiary institution in the 21st century can rely only on printed information resource to accomplish their set goals.

Many strategic factors had been identified by scholars across the world as hindrances to accessibility to ElRs among the students. The level of awareness about the existence of ElRs had been identified as critical to effective access among undergraduates. Students need adequate information regarding availability of resources and how to gain access to these materials to facilitate instructional process, especially at the higher level of education. Undergraduates can only make judicious use of available resources, if they are aware of the existence and channels of access. It becomes difficult for students to use ElRs that they don't even know exist. The onus, therefore, lies on the stakeholders in information system to ensure that undergraduates are well informed on the existence of ElRs and available channels to access them. It is important to encourage library staff to provide adequate information to the undergraduates on the steps to take in accessing available ElRs. No doubt, this will allow them to acquire skills and knowledge to be functional members of the society. This is imperative, especially for new intakes that do not understand the terrain of the school system. These new undergraduates require adequate information on how to access learning materials and utilise them effectively for instructional purposes. The undergraduates would be required to make informed decisions on how to access and fully utilise available ElRs provided by learning institutions. Efforts are to be geared towards activities and processes that would inform students on the availability of educational resources and how students could make effective use of these materials for academic activities at all times.

For the new intakes, the learning environment is quite different from secondary and other tertiary institutions. The instructional terrain in higher education

system poses some challenges to the undergraduates and would therefore require some level of support to participate actively in the instructional activities. The new intakes and existing students require appropriate information on the availability of ElRs and these resources could be optimally utilised within the learning space. Undergraduates are expected to be well-guided on the mode of accessibility to ElRs and steps to take to ensure that the available resources are well utilised for academic purposes. In doing this, the library management should put up friendly environments for students to access these learning materials in the system. The personnel are required to exhibit positive disposition towards students' enquiries. The disposition of library staff towards undergraduates could go a long way in ensuring that students are encouraged and motivated to access and utilise ElRs for instructional activities. Negative attitude from the library staff would discourage undergraduates from using the available ElRs in the system. Therefore, library staff should be well trained on the rudiments of creating enabling environment for the students to access ElRs in the system. The library personnel need to understand learners' characteristics and endeavour to meet the diverse learning needs and aspiration of the students. All categories of students in the library system should be catered for through effective services and adequate information. Library staff are expected to be adept in addressing instructional challenges that undergraduates could face, while access ElRs for academic purposes. This would go a long way in ensuring that undergraduates are given the opportunities to access the ElRs in the library system. In the long run, students would be able to put the resources into maximum use at all times.

The ElRs must not only be available, but must also be of good quality in terms of relevance, functionality and applicability in helping the learners to achieve their learning goals. Undergraduates must have timely access to the available educational resources whenever and wherever. This implies that these learning resources must exist in practice rather than on paper. It should be emphasised that availability does not necessarily translate to accessibility. Accessibility implies that learners are able to use the available materials with little or no restrictions. To achieve this, undergraduates need to be well-equipped with requisite information and competences to access diverse learning resources that facilitate classroom activities. Students need adequate information on how to access services like library services, ICT resources, counseling services and other crucial interventions that are required to make learning meaningful and reduce the rate of frustration in the system. Accessibility to resources

and services should also be timely to entrench trust in the system. This makes ElRs rightly available to meet the immediate and future needs of the learners. A situation where EIRs are readily available but not accessible to learners does not augur well for effective higher education practices. Undergraduates need to have unrestricted access to up-to-date information by leveraging the unprecedented capabilities of ElRs to support learning and research activities.

In order to engender adequate access and effective utilisation of ElRs within the library space, there is a need to give due consideration to the attitude of the library staff, who are the personnel that would interface between the library management and the users, especially undergraduates. The attitude of library staff has been considered as a strategic factor that could determine the level of friendliness in the system. Individual's attitude goes a long way in determining the disposition to a particular event or programme and this could have ripple effect on the success or otherwise of the programme. Within the instructional system, the attitude and disposition of the key players like teachers and students could influence the outcome of the exercise. By implication, positive attitude from the library staff could create favourable atmosphere within the library system, which could influence many other activities along the continuum of information system. A positive-minded library staff would always be ready to offer necessary service to the undergraduates on the best ways to benefit maximally from the learning resources in the system. Students would be provided with relevant information about the available resources and the appropriate channels to access the materials. This would promote active interaction between undergraduates and library resources. When students are given opportunity to interact with the ElRs, they would be able to make effective use of the materials to enhance teaching-learning process.

On the other hand, a staff with negative attitude poses serious challenge to accessibility and utilisation of ElRs in the library system. A negative-minded staff would find it difficult to provide relevant information to the undergraduates on the availability, accessibility and the rate of use of these learning materials to support instructional process. This creates unfriendly library environment that could discourage undergraduates from patronising library services and would negatively influence utilisation of ElRs within the learning space. Furthermore, these students also require adequate information on the available channels that could be used to access learning resources. All these would promote effective utilisation of ElRs by the

undergraduates for learning and research activities. However, it takes library staff with positive disposition to provide these important services to the students. Thus, it becomes important to ensure that library personnel are adequately trained on the appropriate ways to provide relevant information to the students by creating enabling and friendly library environment for active interaction with the library resources. This will improve the abilities of library in providing appropriate and relevant resources to the undergraduates to boost learning and research activities.

ElRs afford libraries across the world to share information on critical issues and concepts. With the capabilities provided by ElRs, a library could request for information or learning materials from other libraries, with a view to catering for the information requirement of the students. This allows for cross-fertilisation of ideas and would go a long way in ensuring that relevant and up-to-date learning resources are made available to students at all times. This would also allow students to get different perspectives of scholars on a particular concept. ElRs, therefore, broadens students' horizons on different issues and improve their research skills. Apparently, this would enhance research activities among students, with ripple effect on their learning outcomes. Digital texts, dictionaries and electronic journals can easily be shared among different libraries to provide relevant information to different categories of users within the system. This improves the functionalities of libraries in providing timely and appropriate information to the students in order to enhance learning and research activities.

The systematic adoption and utilisation of ElRs within the university setting remains crucial to upgrade students' knowledge and boost academic abilities of undergraduates within the system (Deng, 2010). Undergraduates require access to diverse information that could be utilised for instructional activities and this cannot be achieved in the traditional library system. The limitations in the manual system of information search have adverse effects on the capabilities of researchers and students to access up-to-date information for academic activities. The capabilities of ElRs now allow users to access and utilise learning resources to boost research activities. This gives impetus to research skills of students and makes them functional members of the society. Undergraduates are able to utilise the power of ElRs to get access to vast resources that could assist in improving their research skills and solve instructional challenges. These online resources allow students to access the repository of information without temporal or distance constraints as obtainable in the traditional

setting.

ElRs give researchers, especially students at the higher level of education, the opportunity to access huge volume of information at a time, a feat that was not achievable in the traditional library setting. It has been observed that technology had systematically removed the boundaries that separate researchers from information, as diverse internet-based tools allow users to access relevant information even from the comfort of their homes (AdelekeandNwalo, 2017). This implies that ElRs had been recognised as a significant improvement over the traditional mode of information search. The restrictions that separate students from information had been systematically removed with the capabilities of ElRs. This makes ElR a repository of information that could be accessed and utilised by different categories of students within the instructional process.

It has also been established in literature that one of the main benefits of ElRs to the undergraduates is timely access to relevant and up-to-date learning materials for academic activities. The structure of the traditional library creates bottlenecks for users to easily access learning materials on time. Students need to move round the collections to look for appropriate materials, which takes a lot of time and energy. Instructional time of students could easily be wasted while searching for materials in the traditional setting. ElR is therefore a positive response to surmount problems confronting the traditional library setting. With the capabilities of ElRs, undergraduates are afforded the opportunity to access and utilise information in timely manner with little or no restrictions. Students can easily skim and read large volume of learning materials within a short time. This makes ElRs appropriate educational tools for this information economy, where students require vast amount of information to make appropriate choices on their personal and instructional tasks.

2.2 Accessibility to electronic information resources (ElRs) by undergraduates in universities

Higher learning institutions across the world are faced with high level of enrolment from individuals of diverse categories in the society. Different categories of people across the world are finding ways to access formal education with the attendant effect on the available resources within the system. This is complicated with the diverse learning requirements among the students who come from different socio-economic backgrounds and have different expectations from instructional process.

The increased level of enrolment puts pressure on the available resources which requires that school management adopts appropriate platform that would cater for the diverse educational needs of the entire citizenry(Lederman, 2017). This challenges the traditional ways of executing projects in the library system and the need to upgrade the channels of access to information that would cater for diverse needs of students in the instructional setting. The traditional mode of library service had been found to be inadequate to cater for the educational needs of the students in this digital age, based on the increasing demands of the 21st century society and the need for undergraduates to possess adequate skills for them to be productive citizens in the country.

The peculiarities of the undergraduates at this level of education require that they are provided with relevant information to enable them to meet the ever-increasing challenges of today's world. The development in the modern society necessitates the need for undergraduates to be prepared with adequate skills to confront the challenges posed by the digital society. The inability of the lecture method of instruction widely adopted in universities to provide undergraduates with adequate information and learning resources implies that students would have to search for additional sources of information to solve personal and societal problems (Akufo and Budu, 2019). It has become practically impossible for lecturers in the universities across the globe to provide students with adequate information to become functional members of the digital society. Consequently, undergraduates require more information than what the conventional mode of teaching could offer, and this makes it imperative to search for other sources of information to get current and up-to-date learning materials that could be used to complement classroom instruction. This makes life easier for undergraduates as they would be able to get different perspectives to a particular concept and also collaborate with other scholars across the globe to solve regional or world problems.

Thus, it is expected that undergraduates would require access to huge volume of relevant information, as provided by the school management through libraries. Within the library system, different channels are provided for students to access information and available learning resources. In the higher education levels, learning materials are made available for undergraduates to support the classroom activities and solve societal problems. The print materials are usually provided to allow students get additional information to boost their reading and mental dexterity. It is expected that this would improve their learning and research abilities- to solve

different problems within the instructional space. These print materials had been used over the years to engage undergraduates in instructional activities within and outside classroom setting.

However, the instructional constraints posed by the print materials make it necessary for a veritable tool that would allow students and other library users get unrestricted access to learning resources at all times. ElRs have been touted as strategic information tools that afford students the opportunity to access and utilise vast amount of learning materials for instructional purposes. ElRs are veritable internet resources that engage learners in instructional content. Students are able to easily access information using ElRs, unlike the traditional library setting that is restricted by time and space. In the traditional library setting, students are expected to be physically present in the library before using library resources. This makes information system to become cumbersome and not appropriate to the needs and aspirations of the 21st century learners. The capabilities of ElRs had practically removed these hindrances in the traditional system of getting information in the library. With the affordances provided by internet tools, students can now use search engines to get relevant and appropriate information from their homes and workplaces-including working-class, politicians and other individuals in the society. ElRs provide opportunity for the entire populaceas they are engaged in instructional content and can access information anytime, anywhere.

Considering the strategic importance of these resources to students' learning and research activities, it had become paramount for education stakeholders to ensure that undergraduates are able to access ElRs to support classroom activities at any time. Abbas and Song (2020)reported that a significant number of students are not given adequate access to relevant ElRs; hence, they are deprived of enjoying the benefits derivable from the use of ElRs in their study. Accessibility remains a critical factor in the affective utilisation of ElRs for learning and research activities. The importance of accessibility to electronic resources among the undergraduates cannot be overemphasised in the Nigerian universities asAni, Ngulube and Onyancha (2015) alongside Manjack, Dangani and Fari (2018) andTofi and Fanafa (2019) reported that e-journals, e-newspapers, Online Public Access Catalogue (OPAC), CD-Rom database, e-books, online database, e-research reports, virtual library online, science direct online and Ebscohost reference databases ElRs were accessible to a great extent with highest mean score among students in Francis Sulemanu Idachaba Library. Also,

the electronic resources are mostly becoming important and uniquely popular in the Nigerian universities. All the major stakeholders in higher education require the services of ElRs to enhance teaching, learning and research. The undergraduates require ElRs to complement classroom instruction and involve deep learning to solve personal and societal problems. The increasing importance of ElRs had necessitated the need for undergraduates to make judicious use of these materials to access up-to-date information from different regions of the world.Higher education students across different countries of the world require up-to-date information on critical concepts in their areas of specialisation. It had become seemingly impossible for lecturers to equip learners with all the required knowledge and skills that would be needed to function effectively in the 21st century society. Thus, undergraduates are expected to leverage on the capabilities provided by EIRs to support classroom instruction. This implies that ElRs hold the key to recent and up-to-date information that undergraduates would require to solve personal and societal problems. The availability of ElRs can only be meaningful within the instructional setting, if undergraduates are able to make judicious use of the materials to enhance learning and research.

The ubiquitous nature of internet-based resources makes it possible for students to get information from diverse sources by using different channels. This gives room for ElRs to be properly integrated into the internet repository of information. ElRs are integral components of internet-based resources that allow users to access and utilisemyriad ds of information for variety of purposes. Undergraduates across the globe are increasingly relying on these resources to get access to relevant and authentic information that could be used to boost their learning and research capabilities. With the capabilities of ElRs, students are given the opportunity to access large repository of information and collection of learning resources that could equip them with requisite skills and competences to take active part in instructional process.

It is noteworthy that lecturers might find it difficult to provide all the information requirements of the undergraduates due to technological and structural challenges. Undergraduates all over the world are therefore relying on the information provided by the ElRs within the library system to learn and execute research tasks. ElRs comprise huge volume of information on different concepts across disciplines and could provide additional information to the students, with a view to complementing classroom activities. This implies that ElRs remains a repository of

valuable information on the internet that could easily be accessed and utilised by different categories of students that enhances teaching-learning activities. In this wise, learning institutions across the globe are making huge investment in acquiring ElRs to support instructional activities and enhance research activities among undergraduates.

These learning resources have systematically become tools for scanning a lot of materials and access relevant information to promote deep learning. The growth in the emergence of electronic information resources has brought a quiet number of challenges to library administrators worldwide. This is due to the fact that the process is a radical departure from traditional printed materials provision to a hybrid product that affords both the print and electronic sources to be provided concurrently to the undergraduates in the libraries (Alhassan and Macaulay, 2015). These resources permit access without restriction to more currentinformation. The core values of library science give impetus to the pursuit and acquisition of ElRs by libraries/institutions. This core value is the provision of materials for every user. From experience, undergraduates encounter some difficulties in accessing information resources in libraries with only paper-based materials for their studies and research activities. Consequently, university libraries now promote the acquisition and integration of ElRs in order to have improved information collection, organisation and dissemination. Obviously, university libraries cannot satisfy their users with only printed informations sources in this 21st century schooling system. Thus, there is a need for institutions at higher level to engage the capabilities of these internet-based resources to ensure that undergraduates would be able to utilise the materials for academic activities.

In this digital age, it has become practically unsustainable for academic institutionsto rely solely on traditional print resources to meet the diverse needs of users; hence, the investments in electronic information resources. Quadri (2012) supported this by emphasising that no tertiary institution in the 21st century can rely only on printed information resource to accomplish their set goals. In other words, ElRs are being acquired in tertiary institutions in relation to discipline and curricular needs. Also, universities are able to provide 24 hours service through electronic information resources. The service permits flexibility of search and user's convenience of multiple accesses to users, full-text searches and fast delivery of information. For instance, through digital libraries, undergraduates can have access locally to electronic information through the Internet.The evolvement of information

resources from print to electronic affords information users, media centres and undergraduates the opportunity to use several techniques to search for and access information Ankrah and Atuase (2018). Ukpebor (2012) reiterates that relevance of electronic information resources to the users in the higher institution of learning could not be over-emphasised. He affirms that electronic information resources provide accurate, timely information particularly to undergraduates that largely depend on these resources for information to advance their intellectual work and research. There is no doubt that the provision of electronic information resources to enhance undergraduates' learning has brought a remarkable advancement in the education systems across the globe.

Moreover, ElRs allow the students to access and utilise myriads of educational resources on the internet, and therefore remain a critical component of information system within the learning space.Electronic Information resources for academic and research purposes to include e-journals, e-books, e-magazines/newspapers, multimedia resources, e-photographs, e-databases, CD-ROMs and e-charts, among others. Thereare essentially several forms of ElRs, ranging from electronic periodicals to Compact Disk-Read Only Memory, mailing lists, electronic databases, the Internet and other web technologies (Omogbhe, Quadri and Kutu, 2020). These technologies can be used, and sometimes be modified by a computer. This makes ElRs strategic tools that facilitate effective instructional delivery process at different levels of education. Alhassan and Macaulay, (2015) assert that the utilisation of electronic information resources by undergraduates has a remarkable influence on their participation in various academic activities. It is important to note that a significant number of students at tertiary level of education consistently make use of the Internet, electronic mails, electronic journals, electronic bulletin boards, telecommunication, telefax, databases, e-books and scholarly e-databases to execute different academic tasks and solve problems within the society. The capabilities provided by electronic information resources had made the undergraduates have unrestricted access to current and up-to-date information as well as ensuring that a platform is created for easy access to engaging learning resources that would cater for the diverse learning needs in the school system. In different parts of the world, undergraduates use the resources for different purposes including academic activities, online application and registration of courses, research activities, communication and exchange of ideas with friends, searching for available materials for project writings and executing

assignments and other projects. It has been observed that these diverse educational needs of undergraduates could not be satisfied with the existing traditional information system that relies solely on print-based resources.

The undergraduates now live in media-saturated environment and there is a need to provide resources that would engage them actively in the instructional process. These students are increasingly utilising technological devices to access myriads of information for social engagement and if guided properly, willutilise internet-based resources to improve learning activities. Appropriate ElRs have the capabilities to expose learners to unlimited media content that could explain instructional content in more realistic ways. In essence, ElRs are strategic to engage 21 Century learners in teaching-learning process, especially at the higher level of education. In the higher level of education, students have the responsibilities to search for appropriate information and learning resources that could supplement what they learn in the lecture rooms. Thus, it is paramount that these students are provided with a platform that would make it easy to search and utilise diverse learning resources. ElRs serve as repository for diverse learning materials that could facilitate teaching and learning at this level of education.

Despite the importance and popularity of ElRs, it had been observed that most undergraduates are not making use of these learning resources to facilitate instructional activities.Mawere and Sai (2018) opined that in spite of the availability of the EIRs facilities in the e-library of the Great Zimbabwe University, adoption and accessibility rate is still very limited among the students. Similarly, Ankrah and Atuase (2018) in their study on access and usage of e-resources amongst undergraduates in Nigeria, revealed that undergraduates do not have enough access to the use of e-resources as compared to printed information in the library.Many undergraduates find it difficult to effectively utilise ElRs to enhance instructional process. This under-utilisation of ElRs within the instructional space could be attributable to many factors, in terms of psychological and physical factors. Scholars had identified several factors that could inhibit effective utilisation of learning resources, especially by undergraduates. Accessibility of electronic resources has greatly affected the way and manner undergraduates actually read and use the materials to advance their academic activities. The undergraduates use only what is easily accessible to them within the learning space (Manjack, Dangani and Fari 2018). Thus, accessibility to vital information through the use of e-resources among

undergraduates cannot be downplayed in educational institutions. It is expected that provision of ElRs might not make any impact on the learning and research unless undergraduates are given the opportunity to access the resources without much restrictions. Several higher learning institutions across the globe had invested heavily on the acquisition of ElRs in the libraries and media centers to boost research and learning activities of the students. However, students are hindered by strict rules and financial capabilities for effectively use these resources in some learning institutions. In some instances, undergraduates are not given unrestricted access to ElRs and to an extent, this limits the impact of these learning resources in enhancing teaching, learning and research.

Within the context of educational system, ElRs have the capabilities of enhancing students' learning and research activities within the learning space. However, it has been found out that these internet resources are not been fully utilised, especially among Nigerian undergraduates. Yearly, enormous spending in money, human resources, and time is incurred on acquisition and management ofElRs in university libraries. This spending is to update ICT infrastructures, meet electronic journal subscriptions and build capacities for library personnel and library users (Kinengyere, George, and Bernard, 2012). The significant impact of ElRs acquisition on the budgetary provision of the education sector has made it necessary to examine the systematic utilisation of these resources in enhancing teaching-learning process at different levels of education, especially among the undergraduate students. Scholars have been consistently advocating for the need to prioritise factors that could hinder effective utilisation of EIRs within the learning space as no effective learning could take place without the support of various electronic resources in the school system. In the developing countries of the world, especially in Sub-Sahara Africa, the low level of development and limited resources at the disposal of governments necessitate the need to examine the rate of utilisation of these capital intensive investments among the students. This affords governments at all levels the opportunities to re-direct their limited resources to the more productive acquisitions in the sector.

Electronic resources have the ability of enhancing teachers' effectiveness and learning. This implies thatelectronic resources could afford teachers, students and other educational stakeholders the opportunities to access enormous quantity of information, which are available in flexible and non-sequential format. In most instances, provision of EIRs might not automatically translate to effective teaching

and learning, unless students are able to effectively utilise the materials to support classroom instructional tasks at all times. Effective utilisation of resources is strategic to teaching, learning and research. Available resources might not make any impact on instruction, unless students are able to utilise these materials to enhance academic activities. At the higher education level, there is a strong need to ensure that undergraduates have the capabilities and skills to put ElRs into maximum use within the school system. Ajayi, Shorunke, and Aboyade (2014) regard provision of appreciable quantity of electronic information materials as crucial to delivery of library and information services and thus, the effective utilisation needs to be monitored by the school management and other stakeholders in education sector.It is important for education stakeholders to prioritise the effective utilisation of these internet-based resources in supporting students learning at the higher level of education (Alhassan and Macaulay, 2015).

Scholars are increasingly emphasising the need to give due consideration to effective utilisation of electronic resources by the students, as investments in these resources are capital intensive and require systematic planning and implementation (2017; Kinengyere, GeorgeandBernard, 2012). With the huge investment on the educational resources across the world and the potentials these materials have in enhancing teaching-learning process, it is imperative for governments at all levels to make adequate provision for veritable frameworks that would ensure seamless utilisation of ElRs by the undergraduates for academic activities. When these resources are made available within the instructional space, it is paramount to encourage effective utilisation among the students, with a view to ensuring that educational resources are put into maximum use to enhance learning and research among the undergraduates.

In today's information economy in which the processes of education are being driven by ICT, access to e-resources is key to facilitating effective and efficient learning in educational institutions (Okon, Ngulube and Onyaricha, 2014). The congressional office of technology Assessment, COTA (1995), as cited in Aramide (2014) explained that access to technology and technology-based facilities has multiple connotations which might include computer-based resources, computers and related resources at home, current hardware and software and location of computer-based resources. Undergraduates are expected to have access to all these categories of resources within the learning space. Stakeholders in the provision of information

should ensure that enabling environment is created to facilitate accessibility and effective utilisation of ElRs to support learning and research activities among the undergraduates.

Obviously, for students to use e-resources, the issue of accessibility should be given due consideration by stakeholders in higher education system. While great strides are being made to facilitate acquisition and installation of e-resources in educational institutions, there are still some great inequalities of access among the users (Tofi and Fanafa, 2019). Many higher institutions of learning are increasingly focusing on the acquisition of learning resources without due consideration to the issues that relate to access by the users, especially undergraduates. Students need to be given access to ElRs collections in the libraries and media centers to effectively utilise these resources in the acquisition of relevant knowledge and skills to become functional members of the society. In this wise, there is a need for educational stakeholders to provide enabling environment for undergraduates to access learning resources and use same for instructional activities. The onus lies on the library personnel to ensure that undergraduates are properly guided on the available learning resources and how students can access them. This implies that undergraduates require adequate information on the availability of ElRs in the libraries and the existing channels to access these materials. Even if these resources are readily available, there is need for efficient platforms that would make it easy for undergraduates to access and utilise for academic activities. These channels need to be put in place by the stakeholders and undergraduates are expected to be properly guided on how to access the materials within the learning space.

Adesoye and Amusa (2013) express that convenient access to and use of e-resources database in the media centres, documentation centres and libraries remains strategic in ensuring that undergraduates put these resources into maximum instructional use. They further revealed that the respondents preferred electronic resources that are easily accessible to enhance learning and other academic activities. Students would practically show positive disposition to utilise available resources, if they can easily access the materials to support their academic pursuits. It would tantamount to waste of resources if these facilities are acquired, but students do not have access to them. This implies that accessibility remains a strategic factor in the planning and acquisition of ElRs in higher institutions across the world.Ferdinand, Ruth and Paul (2015) posit that accessibility of e-resources in the libraries, media

centres, documentation and ICT centres remains the cardinal principle behind the utilisation of the e-resources among the undergraduates. As such, it has been recognised that e-resources could play positive roles in teaching, learning and studying process of the undergraduates in Nigerian higher institutions, if the issue of accessibility is properly addressed.

It is important to note that students require adequate knowledge of the existing resources and also the channels to access them for instructional activities. Thus, undergraduates have to be furnished with relevant information that would make it easy for them to access ElRs. This responsibility lies on the library personnel to show positive attitude to the students and promptly respond to their requests. In the same vein, the library terrain and infrastructural facilities should be well structured to improve access to educational resources by the students. The entire arrangement in the libraries should be structured such that undergraduates are able access available ElRs for learning and research activities.

ElRs have been playing vital role in the education life of undergraduates in Nigerian universities. These are made possible through the power of internet that makes e-resources to be accessible to the undergraduates in the various locations such as cyber cafe, home, hostels, media centres, just to mention a few (Manoj, Kumar, Gauri andBimal,2011). The preponderance of these internet-based resources could become meaningful to education system if students could be givenunconditional access to the instructional materials to improve teaching-learning process. Sivasubramaniyan and Batcha (2012) express that accessibility is the key to electronic resources that could be found in the ICT centres, documentation and media centres as well as libraries. The principle guiding provision of ElRs to support students' learning requires that these interventions should really be accessible to undergraduates anytime, anywhere. The provision of appropriate EIRs in the learning space only becomes meaningful when the participants in the programme have unrestricted access to the interventions at the points of need. This would help learners in making appropriate decisions on how to effectively utilise these resources to enhance learning at different stages of the programme. In the long run, high degree of accessibility would engender sustainability in the system, as students would be able to get the best out of the learning resources provided for instructional purposes.

Accessibility to ElRs could be influenced by individual and technological factors as identified by scholars in information system. In the opinion of Gakibayo,

Ikoja-Odongo. and Okella-Obura, 2013, issues related to accessibility to ElRs could sometimes be influenced by the personal characteristics of the users, especially the undergraduates and information carriers. The personal characteristics of the undergraduates could include their attitude, perception, socio-economic background, physical or other psychological indices that could determine the extent to which users would effectively put available resources into optimum use. These personal factors could positively or negatively influence accessibility to ElRs among undergraduates. For instance, students from poor homes might find it difficult to afford the financial implication of access some internet-based resources to support classroom instructions. On the other hand, students from wealthy parents could easily pay to access any form of resources that could be useful for educational purpose. In the same vein, physical structure of the users could go a long way in ensuring easy access to some specific educational facilities within the learning institution. Students with disabilities could find it difficult to gain access to some facilities in the libraries and documentation centers due to their specific or peculiar characteristics. These personal characteristics could hinder the level of accessibility to ElRs among undergraduates. The characteristics of the channels through which information flows could also hinder effective access by the users. Some channels or carriers require specific skills and competences to navigate the content and this could deny undergraduates without such skills within the system.

Scholars had also emphasised that the peculiarities of the contents of the ElRs and the overall information environment might also inhibit accessibility among the students. Some content are very easy to navigate and this could encourage students to put the resources into optimum use. This could also improve the level of access among the students.Generally, undergraduates' characteristics like ICT competence, information mastery, attitude to technology, language proficiency, and perceived relevance could also go a long way in determining the rate of access toElRs within the education system. The specific features of some carriers like CD, DVD and flash drives could also be critical factors that could hinder access to information for academic purposes (Kabiru and Usman, 2020). All these personal and carriers characteristics could affect the rate of access to information, especially educational resources among the undergraduates. Thus, educational stakeholders are usually encouraged to put these specific and general factors into consideration in the planning and implementation of information programme, especially within the libraries and

media centers in the higher institutions. The success and otherwise of any information programme could depend largely on these critical features of the users and information carriers.

Scholars had advocated for the need to ensure that friendly channels are selected to convey relevant information to the students. Information channels that are difficult to navigate would pose serious challenges to the accessibility of ElRs by the undergraduates. On the other hand, appropriate channels or carriers of information would encourage undergraduates to easily access the content on the Internet and utilise the ElRs for instructional activities. Thus, critical stakeholders are usually encouraged to put necessary mechanisms in place to ensure that students are able to access ElRs for learning activities and research endeavours. The channels of information are expected to be user-friendly, with the abilities to convey required information to the users. This factor needs to be considered by the stakeholders in the process of acquiring ElRs for instructional activities. Appropriate channels should be selected form the on-set, to ensure that undergraduates are able to easily access the content and utilise such for academic purposes.

In the same vein, accessibility to ElRscan be hindered by the budget for purchasing information carriers like computers and smart phones as well as subscriptions to access a resource (Akufo and Budu, 2019). Affordable subscription rate would allow many average users to access information while high subscription deny the less privileged in the system from access the materials. In essence, affordable subscriptions would motivate average undergraduates especially in developing countries of the world to gain access to relevant and up-to-date information from the ElRs for academic activities. The prices of vital information channels and devices like computers and mobile phones could be a strong factor determining the level of accessibility to learning resources by the undergraduates in the education system. Evidences abound in literature that high cost of digital devices like smartphones and computers could deny average undergraduates from gaining access to relevant information from the ElRs. When the cost of purchasing these devices are not within the reach of the undergraduates, it becomes difficult to have access to relevant information that could help in supporting classroom activities. It is therefore important that stakeholders in education ensure that the cost of these devices and subscriptions to information are kept within the reach of average undergraduates. This will ensure adequate access to relevant and up-to-date information for learning

and research activities.

Budget for purchasing information carriers might not be a significant challenge in developed countries of the world due to the level of development and availability of relevant facilities to support teaching-learning process. In these regions of the world, information carriers like computers and other mobile devices are integral parts of the education system. These devices are usually made available at all levels of education to support instructional activities. Thus, undergraduates in these countries are not basically confronted with the issues of insufficient purchasing power to acquire these devices. However, this is not obtainable in developing and under-developed countries of the world, especially across Africa and Asia. Many countries in Sub-Sahara Africa are practically faced with inadequate learning resources to support classroom instruction. Many undergraduates in these countries are confronted with inadequate resources like computers, smart phones and other mobile devices to access internet-based resources. It is noteworthy that ElRs are domiciled on the internet and require specific information carriers like computers and mobile phones to access the content. These devices are the carriers of information that should be provided for undergraduates to ensure easy accessibility of ElRs in the libraries. However, due to the low level of development and low per capita income in many of these developing countries, it is becoming increasingly difficult for students to purchase necessary devices that could be used to access learning resources on the internet, especially electronic resources. Thus, this remains a critical challenge to the accessibility and utilisation of ElRs among the undergraduates in these countries of the world.

It is therefore expected that stakeholders in education give adequate attention to the issue of information carriers in the school setting as this could hinder effective utilisation of learning resources in the libraries. Some students could afford one or two information carriers for instructional activities. However, there are many indigent students in the school, who might be able to afford the purchase of these learning devices to access available ElRs in the libraries and media centers. These devices are the pre-requisite for accessibility and utilisation of ElRs by the undergraduates. Inability of undergraduates to purchase relevant information devices would hinder access to ElRs in the library system. Since these students come from diverse backgrounds, it becomes practically impossible for all of them to acquire digital devices that are necessary for instructional activities. Apparently,the onus lies on the

stakeholders in education to ensure that no student is denied the opportunity of accessing and utilising the available ElRs on the basis of poor socio-economic status in the society. It is expected that libraries in the universities are equipped with relevant technological devices like Tablets and computers, with a view to ensuring that students in the school environment are given the opportunity to access and utilise EIFGRs for instructional activities. This would ensure inclusion in the system of education at this level.

Library management needs to do more in the area of providing computers for all students to access the available learning resources on the internet. It is also imperative to ensure that internet facilities are made available to undergraduates at all times. Apart from providing digital devices that would assist students to access and use ElRs, it is also important for school management to provide uninterrupted internet services to facilitate effective access and utilisation of these resources to enhance teaching-learning process. Unless students have access to internet services in the libraries, it becomes practically impossible to access ElRs that are domiciled on the internet. Thus, the onus lies on the school management to provide technological devices and internet service services to ensure adequate access and effective utilisation of ElRs by the undergraduates in the universities. This would give necessary impetus to the realisation of the objectives of integrating ElRs into the library system.

Several other factors had been identified by scholars across the world as hindrances to accessibility to ElRs among the students. The level of awareness about the existence of ElRs had been identified as critical to effective access among undergraduates. Students need adequate information regarding availability of resources and how to gain access to these materials to facilitate instructional process, especially at the higher level of education. Undergraduates can only make judicious use of available resources if they are aware of the existence and channels of access. It becomes difficult for students to use ElRs that they don't even know exist (Lefuna, 2017).The onus, therefore, lies on the stakeholders in information system to ensure that undergraduates are well informed on the existence of ElRs and available channels to access them. It is important to encourage library staff to provide adequate information to the undergraduates on the steps to take in accessing available ElRs to allow them acquire skills and knowledge to be functional members of the society. This is imperative, especially for new intakes that do not understand the terrain of the

school system. These new undergraduates require adequate information on how to access learning materials and utilise them effectively for instructional purposes. The undergraduates would be required to make informed decisions on how to access and fully utilise available ElRs provided by learning institutions. Efforts are to be geared towards activities and processes that would inform students on the availability of educational resources and how students could make effective use of these materials for academic activities at all times (Ada, 2013).

For the new intakes, the learning environment is quite different from secondary and other tertiary institutions. The instructional terrain in higher education system poses some challenges to the undergraduates and would therefore require some level of support to participate actively in the instructional activities. The new intakes and existing students require appropriate information on the availability of ElRs and these resources could be optimally utilised within the learning space. Undergraduates are expected to be well guided on the mode of accessibility to ElRs and steps to take to ensure that the available resources are well utilised for academic purposes. In doing this, the library management should put up friendly environment for students to access these learning materials in the system (Akpojotor, 2016). The personnel are required to exhibit positive disposition towards students' enquiries. The disposition of library staff towards undergraduates could go a long way in ensuring that students are encouraged and motivated to access and utilise ElRs for instructional activities. Negative attitude from the library staff would discourage undergraduates from using the available ElRs in the system. Therefore, library staff should be well trained on the rudiments of creating enabling environment for the students to access ElRs in the system. The library personnel need to understand learners' characteristics and endeavour to meet the diverse learning needs and aspiration of the students. All categories of students in the library system should be catered for through effective services and adequate information. Library staff are expected to be adept in addressing instructional challenges that undergraduates could face, while access EIRs for academic purposes. This would go a long way in ensuring that undergraduates are given the opportunities to access the ElRs in the library system. In the long run, students would be able to put the resources into maximum use at all times.

The ElRs must not only be available but must also be of good quality in terms of relevance, functionality, and applicability in helping the learners to achieve their learning goals. Undergraduates must have timely access to the available educational

resources whenever and wherever. This implies that these learning resources must exist in practice rather than on paper. It should be emphasised that availability does not necessarily translate to accessibility. Accessibility implies that learners are able to use the available materials with little or no restrictions. To achieve this, undergraduates need to be well-equipped with requisite information and competences to access diverse learning resources to facilitate classroom activities. Students need adequate information on how to access services like library services, ICT resources, counseling services and other crucial interventions that are required to make learning meaningful and reduce the rate of frustration in the system. Accessibility to resources and services should also be timely to entrench trust in the system. This makes ElRs rightly available to meet the immediate and future needs of the learners.A situation sswhere ElRs are readily available but not accessible to learners does not augur well for effective higher education practices. Undergraduates need to have unrestricted access to up-to-date information by leveraging the unprecedented capabilities of ElRs to support academic pursuits. It had been established that accessibility has strong nexus with utilisation of materials in an organisation. This implies that undergraduates would be encouraged to utilise EIRs, when the resources are easily accessible. This makes accessibility a strategic factor in the utilisation of ElRs by undergraduates.

It is noteworthy that advancement in technological innovations had contributed immensely to the availability of online resources to enhance classroom activities. Also, systematic improvement in technological innovations is increasingly improving access to educational resources by different categories of students. Undergraduates can now leverage the power of technology to access internet-based resources for academic purposes. Internet provides students with open access to diverse learning resources that could facilitate and support classroom instruction. Therefore, undergraduates could use the power of technology to access the ubiquitous resources from their computers and mobile devices. Nwalo (2012) notes that the recent modes of universal accessibility enabled by technological innovations had challenged the general belief that libraries and librarians are the main custodians of information and knowledge within the learning space. The information technology revolution that gained prominence in the latter of the 20th Century culminated in the creation of new types of resources as well as new forms of communication all of which had a serious effect on cataloguing, readers' services and user behaviour. He notes that the new information environment created a shift of emphasis from print to

electronic publishing, especially on the web. The Internet had created a new model in the provision of universal access to information from the click of the mouse and students are increasingly tapping into these capabilities to access current and up-to-date information for learning and research activities.

The affordances provided by technological innovations had made it easy for different categories of learners to access and utilise online learning resources to facilitate teaching-learning process. Teachers and students are increasingly depending on ICT to enhance classroom instruction and promote collaboration and teamwork among different categories of students in the classroom. Technological tools provide undergraduates with the capabilities to interact with learning materials from any part of the world. In this wise, undergraduates could leverage the capabilities of technology to access ElRs from any region of the world. ICT allows students access learning resources even from the comfort of their homes, without the restrictions set by traditional print materials. In the recent time, students at higher level of education are increasingly taking advantage of technological tools to access information on the internet and exchange ideas with other students across the globe. This implies that undergraduates could take advantage of ICT to access ElRs and utilise the materials for learning and research activities. This could add to the realisation of the objectives of huge investment in the acquisition of ElRs in the library collections. The huge investment in the acquisition of ElRs can only be justified, if undergraduates are able to access the materials and use them for academic activities.

Sanni (2015) affirms that users, particularly the Nigerian undergraduates are increasingly becoming independent and versatile in the rate of access to information within the learning space. This is made possible with the capabilities of technology and technological devices like the Internet, computers and mobile phones. These devices are making it easy for undergraduates to access information from the Internet, regardless of temporal and distance barriers. Undergraduates are now provided with the opportunities to gain access to diverse educational resources from the comfort of their homes and workplaces. Students, teachers, researchers, information professionals are the critical stakeholders in the users categories in tertiary institutions. The needs and information seeking behaviours of these people within the learning space vary and therefore need to be catered for by the information system. This could be done by providing adequate access to ElRs to different categories of users within the higher education system. This implies that these diverse groups of

people would be able to benefit maximally from the affordances provided by ElRs, if stakeholders in education give due consideration to the issue of accessibility in the planning and implementation of technology use within the instructional system. The availability of ElRs can only benefit the instructional system, if critical stakeholders in instructional process have access to the materials to enhance teaching-learning process at different levels of education. At the higher education level, institution needs to provide a workable platform for seamless accessibility to ElRs, especially by the students. Undergraduates require the capabilities of ElRs to become functional members of the society and therefore, it becomes imperative for stakeholders to make sure that all categories of learners are granted access to relevant electronic information, with a view to allowing them compete favourably with their counterparts in other countries of the world. This access should be real, practicable and workable to ensure that all categories of learners within the learning space are included in the instructional process.

Based on the capabilities provided by technology in instructional process, there is a need to equip students with relevant ICT skills that would make them become active users of technology. When students are able to use technology effectively, it becomes easy for them to use various technological devices to access information on the internet. Thus, students would be better positioned to use technology to access ElRs on the internet for instructional activities. It had been observed that the extent of utilisation of ElRs could largely be a function of level of accessibility among the students. When undergraduates are able to access the required materials for instructional purposes, it gives impetus to the level of utilisation of ElRs in the library system. This implies that undergraduates need relevant knowledge and skills in ICT to access and effectively utilise internet resources, especially ElRs and other internet-based learning resources. Scholars believe that when students are well equipped with requisite ICT skills, it becomes easy for them to access ElRs for academic activities at different levels of education. Thus, governments at all levels are expected to ensure that necessary facilities are put in place to engender adequate access and effective use of ElRs in the instructional setting. This could be achieved through adequate investment in the training of students and library staff on the requisite skills that are important for effective use of ElRs in the library system. Library staff should be trained on the procedure to use ElRs in the library and provide necessary assistance to the students that are coming to use the facilities. The personnel

should be well trained on the best form attitude to interact positively with these students with a view to encouraging them use the materials for instructional purposes. Positive attitude on the part of the library staff would go a long way in ensuring that students get the best form of supports to utilise available resources in the library collections. Undergraduates need to get answers to their queries all the time and should be given the required supports that would help them make maximum use of the resources for learning and academic tasks. Students should also be trained on the best form of attitude towards library personnel and the available resources in the library. It is important that students are enlightened on the capabilities of ElRs and how to access these resources to facilitate instructional process. These efforts would go a long way at ensuring that undergraduates are able to access EIRs and utilise the resources for learning and research activities at all times.

It is important to mention that the growth of ElRs had provided an opportunity to have diverse means of organising information resources, collections, and services available in libraries across the world. The EIRs have demonstrated positive impacts on the undergraduates and improved the intellectual activities necessary for studying and research. EIRs allow undergraduates to directly access and use ElRs for the improvement of their skills and knowledge that will permit them to live productive lives in today's information society. Thus, issues relating to accessibility should be given utmost consideration by education stakeholders, with a view to ensuring that undergraduates enjoy maximum benefits provided by ElRs within the learning setting. The instructional benefits derivable from effective utilisation of ElRs can only be manifested, when undergraduates are given adequate access to these learning resources at different levels of their educational pursuits.

Issues relating to accessibility to ElRs had been widely discussed by scholars across the world, with specific calls on educational stakeholders to ensure that undergraduates are allowed to access relevant learning resources in the system to enhance teaching-learning process. Undergraduates require adequate information on how to access relevant learning materials for instructional activities. Personnel in the libraries and media centers have the responsibilities to ensure that undergraduates are provided with adequate knowledge of the available materials that could be used to aid learning within the school system. Students also need to understand the available channels of accessing these learning materials, with a view to making judicious use of ElRs to promote deep learning and improved learning outcomes.

Kabiru and Usman (2020) conclude that accessibility of ElRshas been a major factor towards the use of the resources and a key determinant in the effective use of ElRs to support and enhance research and education. The values of ElRs in education could easily be manifested by giving undergraduates adequate access to these learning resources within the instructional space, such that the students would be able to understand the capabilities provided by ElRs and thereafter leverage these abilities to facilitate learning and research activities. It is important to note that ElRs hold the key to recent and up-to-date information that students require to function effectively within their communities and become productive global citizens. Thus, undergraduates need to have access to these learning resources to be provided with relevant skills and knowledge to act productively within the social system. This would promote learners interest in the instructional content and improve their learning outcomes in different areas of specialisation. Ani, Ngulubeand Onyancha (2015) emphasise the need for the development of a framework which focuses on developing EIRs inuniversity libraries and promote locally discovered research information and convert them for national and international access and use.

Accessibility toElRs is considered a major factor as libraries of the 21st Century must provide various access points for numerous users to access collections without hindrance of any kind. Sivathaasan, Murugathas and Chandrasekar, (2014) stressed that accessibility of information resources is a key factor in their usage because users prefer to use information sources that are easy to use `and easily accessible. Thus, accessibility remains a critical factor that could influence the use of technological resources in general and ElRs in particular, especially at the higher level of education. The use of ElRs among undergraduates is influenced by the extent to and the degree of accessibility to such resources. This is because particular users would prefer resources that are easily accessible to facilitate learning. The ease of location would determine whether an undergraduate would use ElRs for academic and research activities or not, and it is expected that easy access to EIRs would increase the tendency to use such resources (Nyabame and Nzuki, 2014). Thus, the functionality of libraries and information seeking habit of undergraduates could depend largely on the extent of accessibility of these importance resources within the learning space. This makes accessibility and utilisation of ElRs to occupy strategic place in research in universities worldwide (Ankrah amd Atuse 2018).

2.3 ICT skills of undergraduates in universities

Information and communication technology has pervaded all sectors of human endeavours as different categories of people are increasingly taking advantage of digital tools and platforms to solve personal and societal problems. The education sector is not left out of this technological revolution as teachers and students are rapidly taking advantage of ICT to participate actively in instructional process. Lecturers across different areas of specialisation are taking advantage of ICT to engage 21st century learners who live in media saturated environments. These digital tools and platforms are used by teachers to facilitate instructional delivery process, especially at the higher level of education. In the same vein, undergraduates require the capabilities of technology to effectively interact with their teachers and classmates (Akpojotor, 2016). ICT has the potentials to make learning more real and connected to real life situation. The implication is that learners in this 21st century schooling system need to leverage the capabilities of ICT to access numerous instructional resources provided by the internet. Internet-based resources like EIRs provide opportunity for undergraduates to use the power of technology in supporting and enhancing instructional process in the school system.

In this modern society, the only language students understand is technology. Technology provides a leeway for students to author and navigate instructional contents that are domiciled on the internet. The 21st century students interact basically with technology and would prefer to learn with digital devices. This makes ICT skills to be paramount when considering access to online instructional content and utilisation of learning resources by the students. Different categories of students in the world are increasingly taking full advantage of ICT to enhance classroom activities. It is therefore imperative to consider the ICT skills of undergraduates in the planning and implementation of information process in the library system.

The undergraduates now live in media-saturated environment and there is a need to provide resources that would engage them actively in the instructional process. These students are increasingly utilising technological devices to access myriads of information for social engagement and if guided properly, they are in the best position to utilise internet-based tools and materials to facilitate classroom and research activities. Appropriate EIRs have the capabilities of exposing learners to unlimited media contents that could explain instructional content in more realistic ways. In essence, EIRs are strategic to engage 21st century learners in teaching-

learning process, especially at the higher level of education. At the higher level of education, students have the responsibilities to search for appropriate information and learning resources that could supplement what they learn in the lecture rooms. Thus, it is paramount that these students are provided with a platform that would (Ukachi, 2015) make it easy to search and use diverse learning resources. EIRs serve as repository for diverse learning materials that could facilitate teaching and learning at this level of education.

It is pertinent to stress that fundamental purposes of utilising e-resources among the undergraduates are multi-dimensional in Nigerian universities. Many of these students are increasingly leveraging on the capabilities of technology for socio-political engagement and it is important that they are provided with the opportunity to use technological platform to access information for academic activities. In this wise, educational resource is a positive response to the need of undergraduates to utilise the capabilities of internet-based resources to relevant information. Accessing information by undergraduates is becoming much easier with the opportunities provided by EIRs. Electronic resources have become essential tools in the hands of the undergraduates by using them to get vital information relating to their academic pursuits. Consequently, they find it so easy and convenient for their academic activities such as studying, learning and research (Dada and Eghworo, 2020). Munira and Bushra (2010) have regarded EIRs as research devices that could provide complementary values to the print-based materials, as undergraduates are shifting to EIRs since they find solace in using them to fast-track their relevant information. Students resort to EIRs because of the numerous opportunities they present to undergraduates. Many of these undergraduates are 21st century learners and the major language they understand is technology. Thus, EIRs provide a veritable platform to engage undergraduates in teaching-learning process. EIRs provide opportunities for undergraduates to explore diverse learning resources that would equip them with skills to develop into productive citizens of the society. The information provided by EIRs is important to develop critical skills that would make undergraduates competent global citizens that would be able to contribute to the development of the society and also have ripple effects on the global economy.

The major benefit of EIRs in academic institutions is that undergraduates can access relevant academic materials remotely at different locations such as lecture rooms, laboratories or homes. Thus, EIRs can be seen to promote efficient

dissemination of information for academic and research purposes in universities. The restrictions and limitations in the traditional information dissemination could be easily surmounted by appropriately deploying EIRs within the learning space. There is a limit to the rate of utilisation of traditional information system by the undergraduates due to the temporal distance and institutional challenges. The volume of information provided by this system is also limited and does not have the capacity to satisfy the information requirement of the 21st century students. Thus, EIRs open up educational opportunities for undergraduates to access current and relevant information without being restricted by time, distance and space. This has contributed immensely to the growth of information within the learning space. Students at the higher level of education now have access to up-to-date information that would equip them with the required knowledge and skills to function effectively in the 21st century society. Undergraduates require the capabilities of EIRs to access relevant information for their learning and research activities. These resources are strategic to the building of functional members of the modern societies all over the world (Kabiru and Usman, , 2020)

Information and Communication Technology plays a pivotal role in the effective utilisation of EIRs among the undergraduates in Nigerian universities. ICT has been a non-negotiable toolin learning and research across different levels of education and students in tertiary institutions need to acquire requisite skills to use technology-related devices to enhance instructional activities (Tyagi, 2011).It is needless to mention that 21st century undergraduates must be ICT-literate in all ramifications, with a view to ensuring adequate access to abundant resources on the internet. It is pertinent to stress that when undergraduates are skillful in ICT, they would be able to access EIRs that could be used to improve their understanding of different courses and concepts. In other words, the undergraduates ought to be skilled in ICT skills application in order to gain self-confidence and independence to use myriad of e-resources across the world (Akpojotor, 2016). In essence, undergraduates are expected to acquire specific ICT skills that would enable them navigate the EIRs on the internet. This makes ICT skills to be strategic in the effective utilisation of EIRs within the higher education system.

It is important to state that ICT skills are considered as those skills that would enable undergraduates to effectively navigate the content of computers and other technologies that would enable them to improve study and research endeavours.

Consequently, it has been observed that for undergraduates to navigate and utilise EIRs to the fullest, they must be equipped with the growing knowledge of ICT in order to explore these resources for the enhancement of their learning and research endeavours. These skills include proficiency in basic knowledge of computers, internet skills, computer operation among other technological-related skills (Shariful 2017). Therefore, ICT skill isthe students' ability to effectively utilise technological tools for effective information gathering, organisation, processing and retrieval. The acquisition of ICT skills has become necessary for undergraduates to navigate vast amount of e-resources that are found in the various information centers such as libraries. In the context of library science and management, these ICT skills incorporate computer skills, internet skills, word processing skills and a host of other important skills that would enable undergraduates to make use of e-resources in the library (Anyira, 2011).

ICT skill is a key competenceneeded to access electronic information resources, especially within the educational setting. These skills include ability to establish a search on a particular concept, identification of relevant sources of information, selection of the right search tools and employment of suitable search strategies and, evaluation of the results. Bendersky, Metzler and Croft (2012) state that the process involved in search formulation requires students to institute relevant queries useful for finding the information needed to enhance learning and research. Fu (2013) are of the opinion that the skill in search formulation is basically needed after the user had identified the required information to be used for academic activities. Search formulation helps the undergraduate to retrieve information relevant to his or her needs. This practically involves students' ability to search for relevant information that could be used to solve instructional challenges. This requires specific skills and it the first step in accessing and utilising internet-based resources, especially EIRs by the undergraduates. After formulating an appropriate search, there is a strong need to identify appropriate information sources. Information sources are points from where information is accessed. There is a need to properly identify these information sources to be used for academic activities. Due to the ubiquitous nature of internet resources, there is a need to identify relevant information and appropriate information sources that undergraduateswould require for instructional activities. All these critical skills are needed by the undergraduates in order to put EIRs into maximum use for learning activities and research. These are the requisite skills for effective utilisation of

educational resources by the undergraduates, especially to promote deep learning and their critical thinking skills (Quadri, 2012).

(Ukachi, 2015) suggests that the major stakeholders in higher education are expected to put necessary mechanisms in place to ensure that undergraduates ICT skills are within the level that could be used to access and utilise EIRs within the school system. Some critical skills are needed to operate specific technologies that have to do collaboration, communication, interaction, design and production, virtual-modelling, file-sharing and social networking skills by the undergraduates. These competences had been identified as centre points of the 21st century LIS education across the globe. Scholars opine that undergraduates in the modern learning space are expected to be dexterous in relevant ICT skills to effectively utilise these strategies to enhance their academic activities at different stages of their educational pursuits. The teaching-learning space is increasingly becoming technology-driven and effective utilisation of internet resources like EIRs requires that undergraduates are adept in the use of technology to navigate online content. This emphasises the pivotal role of undergraduates' ICT skills in the effective utilisation of EIRs.

ICT skills had been generally considered as essential mechanisms in all areas of academic pursuits; the undergraduates with the appropriate knowledge and relevant skills in ICT have the abilities to successfully overcome the problem exponential growth of EIRsin forms, sizes and sources. ICT skills, thus, are required by the students of higher institutions as a result of the on-going proliferation of EIRsand the diverse methods of access across the globe. As such, undergraduates are confronted with varieties of EIRs within academic space. The preponderance of these resources also come with huge challenges in term of evaluating, understanding and using information in an ethical and legal manner, especially among the undergraduates in the university system(Abubakar and Isyaku, 2012). Appropriate ICT skills would assist undergraduates to effectively navigate these ubiquitous resources and select relevant materials that could be used for learning and research activities. These skills are strategic to the effective utilisation of EIRs in the academic environment. The undergraduates need to acquire appropriate ICT skills to be able to manage many EIRs available within the learning space and select the appropriate resources to improve their learning. In this media-saturated learning environment, it becomes practically impossible for students without ICT skills to benefit maximally in the instructional process. This is due to the fact that all instructional activities are now

being presented and packaged with technological devices and platforms that would allow seamless connection with large number of students at a particular time. These devices and learning platforms are increasingly dominating the instructional space and there is a need for all educational stakeholders, especially the student, to acquire relevant skills to access and utilise available resources on the Internet.

Abbas and Song (2020) argues that the problem of non-employability of many university graduates, which isas a result of inadequate skills, indicates that something is wrong with the system and the need to develop students' ICT skills to become functional members of the community. This is in line with the observation made by Onwubiko and Asogwa (2011) that if students who graduate from our universities are unable to trace, amalgamate and appraise information, it will be difficult to them to function effectively in their chosen fields. The taskconfronting the universities is to prepare students with abilities and understanding that will enable them to livesufficient and fruitful lives in the environment that is oversupplied with EIRs information. It becomes practically impossible for undergraduates to funtion effectively within the learning space without the appropriate technological skills that could afford them the opportunities to access and utilise online resources for learning and research endeavours.

Dafioghor (2012) in his study on difficulties and projections of EIRsusage among undergraduates in Nigerian academic documentation centres, media centres and libraries observed that 57% of the sampled respondents were not conversant with the use of a computer; knowledge and that of use of database wasdeprived among the undergraduate appraised. This implies that the respondents were not skillful in the use of technological tools like computers due to inadequate ICT skills. Yusuf and Balogun (2011) assert that usage of ICT has become a substance for undergraduates to have access to electronic resources. In other words, without the basic knowledge of ICT skills,undergraduates might find it difficult to exploit the capabilities of e-resources that are in various sizes, degree and volumes across libraries and media centres. Therefore, ICT skills have become parameters to measure the effective use of e-resources among undergraduates in Nigeria's higher institutions.

Information and Communication Technology skills are required by undergraduates to put available EIRs into optimum use and justify the huge investments made by learning institutions across the globe. Bashorun, Isah and Adisa (2011) express in the strong terms that acquisition of ICT skills by the undergraduates

are essential reasons that determine the usage of EIRs for study and research purposes. The implication is that effective utilisation of available EIRs within the learning space could largely be a function of ICT skills acquired by undergraduates. Higher ICT skills among undergraduates could result in improved accessibility and utilisation of EIRs. On the other hand, students with low ICT skills would find it extremely difficult to utilise EIRs and might not be able to survive in the 21st century schooling system. This is due to the fact that all instructional tasks and research activities revolve around the use of ICT and only students with requisite ICT skills could navigate instructional content and search for relevant information to improve learning outcomes. The onus, therefore, lies on critical stakeholders in education to ensure that undergraduates are equipped with relevant ICT skills to access and utilise available EIRs that support classroom instruction. ICT skills acquired would allow undergraduates solve personal and instructional problems within the learning space and also promote high level of interaction among the students and between students and lecturers. This would afford students the opportunity to contribute immensely to the growth and development of the society and the world at large.

Scholars across the globe have emphasised the need to consider students' ICT skills in the acquisition and utilisation of internet-based learning resources, especially at the higher level of education. A significant number of learning resources are domiciled on the internet and would require 21st century technological competences to be accessed and utilised by the users. Many of these resources require technological devices as information carriers or channels. These information channels in the context of library system include computers, tablets, i-pads and other mobile devices. The devices are equipped with the required capabilities and functionalities to access online content and engender active interaction among users. The affordances provided by these digital tools would allow users to access diverse online resources and utilise such for in executing different tasks. In the context of education system, different categories of students require the capabilities of these tools to access instructional content on the web and utilise the materials for instructional activities. The importance is more prominent at the higher level of education due to the peculiarities of the students and their lecturers. Students at this level of education are mature and ready to acquire necessary skills and competences that would allow them contribute actively to the growth and development of their communities (Sejana, 2017).

Therefore, in order to effectively utilise these information carriers,

undergraduates are expected to be equipped with requisite ICT knowledge and skills, as these competences are required to effectively utilise online learning resources. Undergraduates are required to acquire ICT skills, with a view making it easy for them to adopt EIRs for academic activities. Students with functional ICT skills would find it easy to access and use EIRs available in the library system. This makes it easy for undergraduates to leverage on the capabilities of EIRs in executing instructional tasks and facilitate teaching-learning process. On the other hand, students with inadequate ICT skills would be left at disadvantage in the utilisation of learning resources within the library system. Such students would find it extremely difficult to operate in the 21st century learning environment. These categories of students would not be able to access and utilise EIRs for instructional activities (Shariful, 2012).

Issues related with technological skills have been extensively discussed by scholars in various disciplines while technology has been identified as a strategic tool that had penetrated into all sectors of the economy. This makes ICT skill a globally recognised competence making impact on different areas of human lives across the globe. ICT has revolutionised virtually everything we do as human beings and as such, ICT skills are paramount for students to access and use information for instructional purposes and social engagement. Claro, Press, San Martin, Nonostroza, Valenzuela Cortes, and Nussbaum (2012) affirm that ICT skills are the knowledge and capacity to solve problems related to ICT in digital-controlled environment. It means that functional ICT skills are prerequisite for undergraduates to navigate instructional content in the Nigerian university libraries. These skills remain critical for all categories of students to interact with the learning contents that are domiciled on the internet. Students require access to myriads of information that could be found on the internet and this can only be achieved with appropriate ICT skills. Thus, ICT skills are important for undergraduates to access and utilise online learning content by different categories of students within the learning space.Nwachukwu and Thaddeus (2015) opinethat possession of ICT skills by undergraduates remains strategic not only in the academic situation, but also for lifelong learning settings. This makes ICT skills imperative for undergraduates if they intend to function optimally within the instructional system. Different categories of undergraduates in the university require some level of ICT skills to be able to take active part in instructional process. Ekong and Ekong (2018) suggest that in order to use the increasing variety of electronic resources available in the internet, students should possess the essential abilities to

seamlessly navigate the instructional content for learning and research. These abilities comprise rudimentary understanding of computer, expertise in using production software, electronic communication abilities as well as the Internet skills. Also, Anyim (2018) refers to ICT skills as the ability appropriate tooperate and navigate the potentials of information technology.

It has become mandatory for libraries in Nigeria to key into new technology era that is moving across all sectors in human endeavours. Librarians are therefore required to systematically change their attitude towards the ways and manners services are being delivered to users. The personnel need tobe updated with latest development and acquire new skills as well as techniques for better and improved services for the benefit of the library users (Farahi and Gandhi, 2011). Quadri (2012) is of the view that libraries of nowadays are migrating their roles from the custodian of traditional information resources to provide a good service oriented in digital information resources to the library users. The implication is that library personnel should be trained on the best practices in handling information and relating with the undergraduates. The attitude and disposition of the staff could go a long way in determining the extent of access and utilisation of learning resources provided by the libraries. The staff should provide adequate information to the undergraduates on how to navigate the library terrain and access necessary information for academic activities. Students coming into the library are from socio-economic backgrounds with diverse learning needs and aspirations. Thus, it is important that library management provides a friendly environment for all categories of students within the instructional space. The staff need the requisite skills and positive attitude to relate with the students, with a view to facilitating effective use of EIRs by the undergraduates. The library personnel and the undergraduates are expected to be equipped with relevant ICT skills to be able to use EIRs effectively for teaching-learning process.

It is needless to mention that Information Communication Technology skill is keyfor undergraduates to seamlessly navigate the vast ray of e-resources abound in libraries, media centres and documentation centres. These are the requisite skills and competences that are imperative for undergraduates to access the available learning resources and utilise such for learning and research activities at all times. The ICT skills are the 21st century competences that should be possessed by the undergraduates to functional effectively in the modern society. These skills expose the students to the

myriads of online resources that could enhance teaching, learning and research activities. Undergraduates with appropriate ICT skills would find it easy to relate with the instructional content on the internet and interact positively with students other over the world. This prepares undergraduates for the challenges of the 21st century society, where technology had pervaded all aspects of human endeavours. The implication is that students with requisite ICT skills would be able to function effectively with the modern instructional system. Undergraduates need the capabilities of ICT to navigate online instructional content and utilise learning resources for teaching-learning activities. This equips students with the competence to become active participants in the instructional process, especially at the higher level of education (Odunewu and Aluko-Arowolo, 2018).

Undergraduates with deficiencies in knowledge of computers and the Internet would definitely be at disadvantage. It is becoming increasingly difficult for students without requisite ICT skills to function effectively in modern instructional setting. This is due to the fact that technology has pervaded all aspects of human endeavours and education sector is not immune from this technological revolution. The implication is that undergraduates without the required ICT skills might not be able to interact with instructional content and collaborate with other students from different countries of the world. The ability to locate information from e-resources is basically rested on the ICT skills undergraduates possessed (Lawal and Lawal, 2015). Undergraduates with requisite ICT skills would find it easy to relate with online instructional content and utilise EIRs for learning and research activities. On the other hand, students who are not ICT compliant would find it extremely difficult to cope with the ever-increasing challenges of the digital instructional setting. Emwanta and Nwalo (2013) assert that undergraduates in Nigeria universities critically need to have knowledge of ICT as this would put them at a comfort level to make use of e-resources so as to make an adequate decision on their academic endeavours as well as other mundane activities. Requisite skills in ICT would equip undergraduates with appropriate competence to access learning resources and utilise such materials to improve learning and research at this level of education.

Omosekejimi, Eghworo and Ogo (2015) stress that efficient and effective utilisation of EIRs among undergraduates in Nigeria universities mostly depends on the possession of relevant Information Communication Technology skills as these skills would enable them to use the e-resources for their research and studying

activities. ICT skills refer to the comfort levels an undergraduate has with utilising computer packages and other computer-related devices for instructional activities. Equally, application of ICT skills by undergraduates in searching for research literature could be pronounced as the degree to which undergraduates are proficient in using electronic resources or use computers to uncover pertinent sources and information for educational or exploration endeavours. Basically, ICT skill is related to the undergraduates' ability to be accustomed with the use of several software programming and computer networking, which could enhance teaching, learning and research (Emwanta and Nwalo 2013).

Thus, experts are consistently advocating the need to sharpen undergraduates' ICT skills as they are coming into the system. Thus, there is a need to train undergraduates on the rudiments of using technology for instructional purposes. The school managements are required to ensure that all categories of students are well trained to acquire requisite ICT skills to effectively utilise learning materials on the web. This would go a long way in improving access and utilisation of EIRs among the undergraduates in the universities.

It has been recognised that students' skills can easily be improved upon by adequate training on the rudiments of using technology in instructional process. It should be mentioned that these youngsters live in media-saturated environment and understand the language of technology in executing tasks. In most cases, young people use technology for un-instructional purposes. This is easily manifested in the way people exchange opinions and ideas on social media platforms, especially among the youngsters in the society. The young people in the society are usually adept in the use of technology for social engagement and other purposes that are not connected with classroom instruction. Individuals in the society are increasingly dependent on the capabilities of social media to get information and interact with other people in different regions of the world.

However, it should not be assumed that students would be able to utilise technology and technological devices for instructional purposes the way they do for social engagement. There is a difference between the use of technology for classroom instruction and social engagement. The use of technology for instructional purposes involves systematic procedures that are tailored towards achieving the stated instructional objectives. The characteristics of the learners are also considered, when planning and implementing technology integration programme at different levels of

education. This makes it important for undergraduates to be adequately trained to acquire relevant ICT skills, which would enable them properly utilise technology and technological tools to enhance teaching and learning within the university(Anyim, 2018). Students are expected to be exposed to the fundamentals of using ICT-related devices and platforms for learning and research activities. This involves the ability to select appropriate ICT tools and devices for instructional purposes. This would be based on several factors including learners' characteristics, the content of instruction, availability of resources and the nature of academic activities to be executed. Undergraduates are expected to be exposed to adequate ICT skills to make appropriate choices in the process of selecting materials and devices to be used in accessing and utilizing the available EIRs within the library system. These skills would enable students utilise learning resources in the library in effective and efficient manners.

All the benefits accruable to the acquisition of EIRs in the library system could impact positively on the teaching-learning process and improve research skills of undergraduates. However, these instructional benefits are not achievable in a situation where students are confronted with inadequate ICT skills to maximise the use of these resources for learning and research. ICT skills would promote accessibility among the undergraduates as these students would be able to understand the appropriate channels to get relevant information within the system. Apparently, undergraduates require ICT skills to improve their competence in accessing EIRs that are situated in the library system. Also, the aforementioned ICT skills are strategic for effective utilisation of EIRs for different academic activities.This implies that acquisition of ICT skills is strategic within instructional process as it ensures proper accessibility and adequate utilisation of available resources within the library system (Emwanta and Nwalo, 2013).

Scholars have advocated the need to ensure that practical training be organised for all categories of undergraduates in the universities. This is particularly important for the new intakes within the system, with a view to ensuring that students are able to adjust to the new system and interact with the available learning resources in the library. The training needs to be hands-on, in order to afford undergraduates acquire necessary skills that would be useful in accessing and utilising EIRs for academic activities.When undergraduates are exposed to the skills in using technological devices and internet platforms, it becomes easy for them to access EIRs and utilise

such for learning and research activities. This would go a long way in ensuring that the fundamental objectives of acquiring EIRs within the library system are adequately realised. This provides a good justification for huge investment on acquisition of these resources to enhance teaching-learning process at this level of education (Sanni,2015).

This practical training is expected to equip students with the required skills and competences to participate actively in the instructional process. At the higher level of education, undergraduates need different skills to succeed within the instructional process, ranging from intrapersonal skills, interpersonal skills, collaborative skills, ICT skills, among other critical skills that should be developed along the continuum of teaching-learning process. All these skills work together to equip students with relevant competences that will enable themto be active participants in classroom activities. However, ICT skills remain central to the acquisition of other important skills within the learning space. In other words, ICT skills could help in the realisation of the objectives of acquiring other skills to assist students in becoming functional members of the community. ICT skills could help in developing collaborative skills of the undergraduates (Anyim, 2018).

The implication is that technological skills could strengthen exchange of ideas and information among the students in the classroom. The power of technology could help to encourage student-student interaction in the classroom. Also, the teacher could leverage the capabilities of technology to improve students-teacher interaction and cross-fertilisation of ideas among the students. Thus, students with adequate ICT skills would be better positioned to adopt the power of technology in promoting interaction within and outside classroom setting. In other words, the critical stakeholders in education could easily leverage on the power of ICT to entrench active interaction among different categories of students within the instructional system (Ekong and Ekong, 2018) This makes ICT skills to be integral part of 21st century learning system, where learners live in media-saturated environment. These skills are strategic to effective participation of students in classroom activities. The skills are also important to ensure active interaction among the students and between the students and learning materials. It is important to note that undergraduates need to interact with the learning materials within the classroom setting for learning to be effective and productive.

Beyond this, there is a need to encourage and sustain students-materials interaction outside the classroom setting. Teachers need to encourage undergraduates

to interact and utilise learning materials situated in the library and other media centres to support classroom instruction. There are huge learning resources in the library that are domiciled on the web and students need to actively interact with these resources and utilise them effectively to promote teaching and learning activities. This kind of interaction with online materials would be practically impossible without adequate ICT skills that could help students to effectively navigate online content like EIRs and other internet-based information repository. Thus, students need to develop these skills to interact with learning materials within and outside classroom setting. The onus lies on the lecturer to encourage undergraduates to give premium to the process of acquiring these skills, with a view to making them active participants within the instructional process. Undergraduates with required ICT skills would be able to access and utilise learning resources within the learning space and outside the classroom setting (Kumar, 2013). In the same vein, it is imperative for school management to organise capacity building for the lecturers on the rudiments of ICT skills in facilitating teaching and learning activities. This would place them in better position to encourage undergraduates to acquire relevant ICT skills to access and utilise EIRs in the library and other media centres within and outside the school environment. Also, undergraduates require adequate training on the acquisition of basic ICT skills to interact with online materials and utilise EIRs effectively within the library system (Ogunsola, Akindojutimi and Omoike, 2011)

2.4 Environmental factors affecting use of electronic resources among undergraduates

Electronic resources are strategic components of educational services rendered by libraries and media centers in the school system. These resources provide veritable platforms for undergraduates to access and utilise relevant information available on the internet. With the increasing level of enrolment in higher education and the challenges of the modern schooling system, it becomes important for students to be provided with relevant EIRs that would allow them get information on different concepts and topics to support the prevailing lecture method of instruction. Thus, it is important to properly examine factors that could inhibit effective utilisation of EIRs among undergraduates, especially in this part of the world. Scholars across the world had identified different sfactors that could hinder effective utilisation of EIRs by the students, especially the undergraduates (Sahabi, Lawal and Amishe, 2017). These

include personal and environmental factors and these factors need to be considered in the planning and implementation of technology utilisation programmes.

Experts in the field of education are increasingly advocating for the need to give due consideration to the environmental factors that could determine successful implementation of any technology utilisation efforts, especially in the use of EIRs to support classroom instruction. Proper attention to environmental factors is essential for effective teaching and learning at any level of education. This becomes more imperative at the university level, considering the characteristics and expectations of the students. The physical environmental conditions of a library are as strategic as the resources therein (Saka, Aremu and Adedeji, 2012). This implies that physical structure of the library is crucial as the learning resources that had been made available in the facility. Regardless of the availability of relevant learning materials in the library, students might still find it difficult to utilise these resources for learning and research if the environmental factors are not given due consideration in the planning and implementation phases. This makes environmental factors as strategic as the available materials in the library.

Library resources are better utilised when relevant environmental factors are available and adequate to esteem users. The configuration of the library space and the availability of these infrastructures are critical to effective utilisation of EIRs by the undergraduates. It is important to note that adequate arrangement of facilities could encourage undergraduates to visit media centers, documentation centers and libraries as students would find it easy to utilise available resources for academic activities (Thangaraj and Balaji, 2014). This implies that the arrangement of the physical facilities could influence the decision of undergraduates to utilise library resources at any point. On the other hand, irregular arrangement of facilities in the library could put undergraduates in awkward position and discourage them from making effective use of learning materials, especially EIRs for study and research endeavours. This emphasises the pivotal roles of environmental factors in the utilisation of EIRs among undergraduates, especially in this part of the world, where limited resources are available for infrastructural development in education and other critical sector of the economy.

Hoffamamn (2018) asserts that the environment encompasses all factors germane to the smooth functioning and operations of an organisation. The implication is that environmental factors could be considered as all infrastructural elements that

could create enabling environment for effective usage of EIRs in the libraries, media and documentation centres. These are the environmental elements that could hinder smooth access to the available EIRs in the libraries by the undergraduates. The availability of these resources and enabling conditions surrounding the facilities would determine the extent of use by the users. When the physical environment of the library is conducive, undergraduates would be encouraged to make optimum use of the educational resources to update their knowledge and skills in critical concepts that would make them to be functional citizens of the society and the world at large. Conducive environment would improve mental and psychological status of the undergraduates and therefore, result in effective utilisation of EIRs for productive academic tasks.

Saka, Aremu and Adedeji (2012) conclude that the physical environments of universities are major factors that determine university undergraduates' performances in their studies. Library environmental factors could be referred to as the physical, social, political, psychological and personnel activities of a university library that can impact the usage of EIRs. Specific examples of environmental factors are the available furniture and its arrangement, electricity supply, lighting facilities, ventilation and cooling systems, noise level, library opening hours, building design and aesthetics and, library personnel attitude to undergraduates. All these play prominent roles in the usage of the library and its resources by the undergraduates. The terrain of the libraries and other physical infrastructure could influence the level of engagement of undergraduates with the instructional content. These environmental factors could determine the extent of attention students would give to the content and this goes a long way in impacting the level of learning outcomes in terms of performance and attitude to the course. When enabling environment is created for users to interact with learning materials, it would promote deep learning and active engagement with course content.

Undergraduates in this kind of environment would find it easy to understand the subject matter and apply same to solving personal and societal challenges. Apparently, environmental factors that promote active learning and engagement with instructional content would prepare undergraduates to become active participants in solving problems within the school setting, community and the world at large. On the other hand, when the arrangement of available facilities is difficult for users to navigate, effective utilisation of resources becomes herculean. In this kind of setting,

it is difficult for undergraduates to seamlessly navigate the terrain and access available resources (Folorunsho and Njoku, 2016). This would reduce the level of utilisation of EIRs by undergraduates and other library users. This further gives impetus to the strategic roles of environmental factors in the effective utilisation of EIRs by undergraduates. This is why many scholars are emphasising the need to ensure adequate provision for enabling environment, to encourage effective utilisation of EIRs among undergraduates for academic purposes. It is believed that this effort would go a long way in reducing to the barest minimum, the challenges confronted by the students in accessing and utilising available EIRs for learning and research

Sote and Aramide (2010) affirm that university administrators are expected to provide an enabling environment and essential facilities for students, in order to provide for their information needs and to ensure maximum utilisation of resources available in libraries. Therefore, good environmental factors such as cross ventilation, noiseless library halls; comfortable furniture and bright illumination of libraries are crucial to effective utilisation of electronic resources, which could enhance learning and research amongst undergraduates. It is pertinent to stress that university libraries support the teaching, learning and other curricular activities of their institutions. Therefore, the critical roles of libraries would become meaningful, when universities administrators could create enabling structure for effective and utilisation of various resources to support students' learning at different levels of education.

Evidences abound in literature that effective utilisation of electronic resources could largely depend on the environmental condition of the libraries (Sote and Aramide, 2010; Adebimpe, 2012; Ajayi and Aramide, 2012 and Adeniji, 2014). Specifically, Ajayi and Aramide (2012) identified major environmental factors that may result in poor or refusal to explore and access EIRs by undergraduates for academic activities. These are poor or inadequate access ICT facilities, poor internet access, insufficient computer work stations and inadequate ICT skills. Other reasons for poor use of the resources are the high cost of internet connectivity and accessibility, lack of training and re-training opportunity in the use of EIRs, absence of skilled personnel to maintain ICT equipment and, poor and unavailability of infrastructure. These factors can limit the use of EIRs for academic purposes in the university libraries. These findings established the huge environmental constraints confronting undergraduates in their bid to use electronic information resources (Hasirci, 2011).

It is pertinent to note that libraries and other documentation centres had invested heavily on the provision of e-resources to the undergraduates in Nigerian universities to improve learning content and expose them to different perspectives in research. However, it is evident that many students still find it difficult to effective harness the potentials of e-resources to improve the quality of teaching and learning in the education system. The inability of these students to effectively utilise the resources provided by libraries could be attributed to the environmental factors like sitting arrangement and attitude of personnel (Omosekelimi, Eghwovo and Ogo 2015). Environmental factors imply the situations, individuals and resources that could be found around library environment, which could influence accessibility and utilisation of learning and research materials in the library system. The factors comprise human and material resources that surround the entire library vicinity and which could encourage or discourage undergraduates to utilise available learning materials in form of prints or electronic that are domicile on the internet. This implies that environmental factors in the context of library system are not restricted to material resources in the system. Human and material resources within the library system could go a long way in determining the level of access and utilisation of EIRs in the education system. The arrangement of these resources could also influence the use of learning materials in the library, especially EIRs, among the undergraduates. This is the reason why scholars are consistently emphasising the need to prioritise issues that relate to the availability and arrangement of human and material resources located in the library system so as to ensure that users are able to interact with learning resources that are made available in the library for instructional purposes.

Amusa and Iyoro (2013) affirm that the structure and design of library could positively or negatively influence the use of library resources. This design orientation could alter the behavior and library patronage among the undergraduates even if all the physical structures are available in favourable environment. They also mentioned that the attitude of library staff also counts, as they will make users particularly undergraduates comfortable or uncomfortable in using library. Consequently, the relevance of the information resources as well as the environmental factors of the libraries such as climate, temperature, light, noise and security could limit undergraduates' use of e-resources to enhance learning and research (Doraswamy, 2012). The availability of these facilities in the library system could go a long way in encouraging users, especially undergraduates, to patronise services rendered by

libraries in higher institutions across the globe. Not only that, it is important that available facilities are properly arranged to allow for easy movement and interaction between undergraduates and learning materials. The arrangement of seats and other physical structure could influence the degree of navigation in the system. Chairs and tables that are properly arranged would allow for easy movement within the library structure.

On the long run, this kind of favourable structure would systematically improve the level of interaction within the system. It should be noted that students are expected to interact positively with the available materials and effectively utilise such for academic activities. Undergraduates require EIRs to support classroom instruction as it is increasingly becoming difficult for instructors or tutors to feed students with all the required information to be successful in the school system. Undergraduates require information from diverse sources to be equipped with relevant knowledge and skills to function effectively in the digital society. Thus, undergraduates are expected to be provided with the opportunity to interact freely with the EIRs, with a view to ensuring that the myriads of information available on the Internet are adequately utilised to support classroom instruction. It therefore becomes crucial for undergraduates to be given the opportunity to interact with learning resources in the library to justify the huge investment on the acquisition of these materials in the library system (Oyedum and Nwalo, 2016).

Environmental factors include physical facilities like furniture, lighting and ventilation as well as the arrangement of these facilities. These variables, to some extent, could influence the use of the EIRs in the library by the students. The extent to which library resources would be put into optimum use by the students could largely be a function of these environmental factors. This is why scholars are consistently advocating for the need to ensure that environmental factors like these are given due consideration in decision-making process within the library system. Availability of these facilities and their arrangement to suit the learning requirements of the undergraduates are strategic in ensuring effective utilisation of EIRs within the library system. Oyedum (2011) affirms that environmental issue like adequate ventilation is a strong determinant of deep learning and productive research activities among undergraduates. It is expected of a library to be equipped with necessary facilities like air conditioners, ceiling fans and windows with cross ventilation to create conducive environment for learning and research. Considering the climatic condition of Nigeria

as a tropical region, it becomes practically impossible for any student to read and learn in a library without adequate ventilation. Different geographical regions of the world have their peculiarities and these characteristics should be given due consideration in the library system. A well ventilated library will provide the kind of coolness and calm required for deep learning and productive research endeavours. This should be supported with air-conditioners and fans to provide conducive environment for undergraduates to effectively utilise EIRs in the libraries.

These facilities would go a long way in ensuring that undergraduates are afforded the opportunity to learn and carry out research activities in an enabling atmosphere. This kind of atmosphere is critical to engaging learners in instructional content and promoting deep learning among the undergraduates. Environment and learning are inextricably linked as the arrangement of facilities and structures in the classroom and library can go a long way in determining the extent of learning that would take place in such instructional setting. Apparently, undergraduates require library resources to be equipped with relevant skills and knowledge to be creative and innovative members of the community. In order to become active participants in instructional process and contribute to the development of the community, students need to be exposed to relevant knowledge and competences that would promote deep learning and critical thinking. The library system has the responsibility to provide rich learning resources that undergraduates could utilise to develop these 21st century skills. Thus, it is imperative to ensure that the library system is equipped with the required facilities that would give room for seamless learning and research activities among different categories of the students in the school system. In other words, these facilities are pre-requisites to effective utilisation of library materials within the learning space. Library system with adequate supporting facilities like lightning system, fans, computers and others would be able to encourage and stimulate students to interact with the content and retrieve relevant information for learning and research purposes. It has been argued that these supporting facilities hold the key to effective accessibility and usage of available learning resources within the library system across different levels of education (Hasirci, 2011).

This becomes more important at the higher level of education where students rely largely on learning resources in the library to complement classroom activities. The peculiarities of these students indicate that additional learning resources are expected to be provided to enhance teaching-learning process. University libraries are

saddled with the responsibilities of ensuring that these resources are made available to the undergraduates with little or no restrictions. Thus, the library system should be made conducive through the provision of adequate supporting facilities to make learning and research activities more productive and applicable to real-life situations. The availability of appropriate learning resources like EIRs would translate to nothing, if these facilities are made available to promote access and utilisation by the undergraduates within the system (Folorunsho and Njoku, 2016)

Library resources are better utilised when relevant environmental factors are available and adequate to users. The configuration of the library space and the availability of these infrastructure are critical to effective utilisation of EIRs by the undergraduates. It is important to note that adequate arrangement of facilities could encourage undergraduates to visit media centers, documentation centers and libraries as students would find it easy to utilise available resources for academic activities. This implies that the arrangement of the physical facilities could influence the decision of undergraduates to utilise library resources at any point. On the other hand, irregular arrangement of facilities in the library could put undergraduates in an awkward position and discourage them from making effective use of learning materials, especially EIRs for study and research endeavours. This emphasises the pivotal roles of environmental factors in the utilisation of EIRs among undergraduates, especially in this part of the world where limited resources are available for infrastructural development in education and other critical sector of the economy (Hoffamann, 2018).

Oyedum (2016) asserts that environment encompasses all factors germane to the smooth functioning and operations of an organisation. The implication is that environmental factors could be considered as all infrastructural elements that could create enabling environment for effective utilisation of EIRs in the libraries, media and documentation centres. These are the environmental elements that could hinder smooth access to the available EIRs in the libraries by the undergraduates. The availability of these resources and enabling conditions surrounding the facilities would determine the extent of use by the users. When the physical environment of the library is conducive, undergraduates would be encouraged to make optimum use of the educational resources to update their knowledge and skills in critical concepts that would make them to be functional members of the society and the world at large. Conducive environment would improve mental and psychological status of the

undergraduates and therefore, result into effective utilisation of EIRs for productive academic tasks.

In a study carried out by Oyedum and Nwalo (2011) to examine the availability of facilities across Nigerian libraries, it was reported that libraries in the selected universities had adequate illumination level of 61.6% as revealed by the respondents. Thangaraj and balaji (2014) assert that students at all levels seek comfort and convenience in attempts to study or conduct research activities. In this context, comfort has been identified as one of the most important factors that students put into consideration when there is a need to study or carry out research tasks.Libraries at the universities provide opportunities to access learning resources to enhance teaching-learning process. The effective utilisation of theselearning materials needs conduciveatmosphere for reading. This kind of atmosphere should providenecessary comfort and suitable environmental conditionrequired for learning. The library environment should be well structured to engender learning among different categories of students. Some environmental conditions like lightning, noise level, comfortable reading tables and chairs among other factors could impact reading exercise among the library users (Thangaraj and Balaji, 2014). Lightning could be supplied in the library through natural and artificial means. Using the advantage provided by daylight could be efficient to perform the task easily, effectively and also economically. In the case where natural lightning becomes insufficient, artificial lightning has to be put in place for users to put library resources into optimum use.

The degree of lightning has influence on the usage of EIRs by the undergraduates in libraries of universities in Nigeria. Hasirci (2011) pointed out that the daylight is more important and beneficial to the library users. This is based on the designing of the library building structures. The key point is that daylight would assist the users and the materials they are using for their studying and reading in the library. This natural occurrence is more efficient and economical, especially in developing nation like Nigeria and other countries in Africa, where there are limited resources to cater for the educational needs of the citizens. It should be noted that natural lightning is subject to variations in the positions of sun in relation to the earth. This makes natural lightning to be unreliable for effective utilisation of library resources by the users. Thus, artificial lightning needs to be made available to complement the natural lightning and ensure that students are able to access and utilise library resources at all times.

In a survey on the impact of lightningon seating preference and resource usage in an institutional library in Salem, Tamilnadu Malaysia, it was discovered that lightning affects the seating preference of the users. However, 32% of the respondents agreed that lighting affects their seating preference and 29% of them strongly agreed with it. This implied that a significant number of the students believed that lightning could influence where they choose to sit in the library (Thangaraj and Balaji, 2014). Students would prefer to sit in a space where they would be able to effectively utilise library resources. This makes it important for stakeholders to ensure that libraries are well provided with lightning resources that would make it easy for undergraduates to use library resources for learning and research.

Saka, Aremu and Adedeji (2012) advocated that libraries across the world are expected to enjoy some level of silence; thus,it becomes imperative for library management to control the noise level and probably reduce it to the barest minimum. Noise in the library system could originate from electrical appliances (photocopiers, air conditioners or other ventilation gadgets) as well as disturbances from outside the library which include noise from motor vehicles, humans and other sources of noise. Shah and Saleem (2010) affirm that physical environment is a key contributor that affects the users of library and library resources. They observed that there was no proper reading environment in Pakistan libraries and lightning facilities, air-conditioning systems and furniture arrangement are all in very poor conditions. By implication, this would discourage the users to put library resources into optimum use. They reviewed that the provision of adequate environment can be helpful for users making use of library resources. In addition, users of the library will like to study where there is less noise, large space and where comfort is guaranteed.

Apparently, environmental factors are strategic to the effective utilisation of EIRs by the students. These variables should be adequately considered in the siting and construction of library in order to ensure that users able to use library materials under a peaceful and serene environment. There might be a need to construct library with noise-proof materials to ensure that external disturbances do not constitute nuisance to the library users. Library staff also need to be trained on the acceptable seating arrangement that would allow unhindered movement within the library space. Undergraduates should be given the opportunity to navigate library collections and utilise such for academic purposes. This is achievable when the surrounding environmental factors are favourable to the students. In this sense, the aforementioned

environmental factors should be given due consideration in the siting and construction of library buildings in the universities (Folorunsho and Njoku, 2016).

In the same vein, the peculiarities of the undergraduates should be taken into consideration when planning and implementing information system in the library. In the arrangement of seats and placement of critical facilities, it is paramount to consider the physical and psychological needs of the students, who are the major stakeholders in this process. There is a need to ensure that all categories of students are included in the planning and implementation of the programme. In other words, efforts should be made to engender inclusive education practices in the access and utilisation of learning resources in the libraries. The specific characteristics of students should be considered in the entire system. For instance, students with learning disabilities or physical challenges should not be denied the opportunity to access and use available EIRs in the library. The entire library structure should be constructed to cater for all categories of undergraduates in the university. As a result of their genetic make-up or physical orientation, some students might require specific attention to access library resources (Saka, Aremu and Adedeji, 2012). The library structure should allow students with physical disabilities to move and interact with the learning content. Experts believe that this would engender inclusive education practice in the instructional process. Thus, it remains imperative for stakeholders to consider the peculiarities of the undergraduates and cater for the specific and general needs of the students. This would allow all categories of students in the system to access and utilise the available EIRs to support instructional process.

It is imperative to note that operations in the university are carried out within specific environment and environmental variables within the geographical region could pose some difficulties and learning opportunities for all the students and this could affect the provision of essential services by the organisation, especially the learning institutions across the world. Njanja (2009) affirms that experts in information system need to recognise and identify this revolution in library environment and put proper mechanisms in place in order to be relevant in today's digital age. The pivotal role of environmental factors in determining the use of EIRs in the library system cannot be over-emphasised. Adeoye and Elegunde (2012) believe that organizations including libraries need to recognise the environmental factors sources of competitive advantage and challenges that should be duly considered in technology integration efforts.

In the same vein, the attitude of library staff had been considered as a strategic factor that could determine the level of friendliness in the system. Individual's attitude goes a long way in determining the disposition to a particular event or programme and this could have ripple effect on the success or otherwise of the programme. Within the instructional system, the attitude and disposition of the key players like teachers and students could influence the outcome of the exercise. By implication, positive attitude from the library staff could create favourable atmosphere within the library system, which could influence many other activities along the continuum of information system. A positive-minded library staff would always be ready to offer necessary service to the undergraduates on the best ways to benefit maximally from the learning resources in the system. Students would be provided with relevant information about the available resources and the appropriate channels to access the materials. This would promote active interaction between undergraduates and library resources. When students are given opportunity to interact with the EIRs, they would be able to make effective use of the materials to enhance teaching-learning process (Hasirci, 2011).

On the other hand, a staff with negative attitude poses serious challenge to accessibility and utilisation of EIRs in the library system. A negative-minded staff would find it difficult to provide relevant information to the undergraduates on the availability, accessibility and active use of these learning resources to support instructional process. This creates unfriendly library environment that could discourage undergraduates from patronising library services and would negatively influence utilisation of EIRs within the learning space. Students are expected to be properly guided with relevant information on the amount of materials that are available for classroom activities. Furthermore, these students also require adequate information on the available channels that could be used to access learning resources. All these would promote effective utilisation of EIRs by the undergraduates for learning and research activities. However, it takes library staff with positive disposition to provide these important services to the students. Thus, it becomes important to ensure that library personnel are adequately trained on the appropriate ways to provide relevant information to the students by creating enabling and friendly library environment for active interaction with the library resources (Folorunsho and Njoku, 2016).

2.5 Accessibility to and use of electronic resources by undergraduates in universities

University students are expected to be furnished with relevant skills to confront different challenges anytime, anywhere. With the peculiarities and characteristics of these categories of students, it is expected that due consideration is given to the provision of relevant learning materials to assist them in their academic pursuits. The undergraduates are mature students that would require appropriate information on different concepts to broaden their horizons and become global citizens. Quadri and Abomoge (2013) simply refer to university undergraduates as "students of learning institution, especially university, who are yet to complete their first degrees or completed their course of study".These students are currently different programmes in universities to become better citizens and contribute to the growth and development of the societies across the world. It is important to stress that undergraduates in Nigerian higher institutions have therefore attached more importance to their learning since it has life ticket to be something better in future. In the context of Nigerian social structure, an increasing number of people are attaching much importance to the certificates acquired by individuals in the society, especially the youth. This makes acquisition of skills and competences by the students in the universities to be strategic to the functionality of the youth in the society. This indicates that undergraduates need to acquire appropriate skills and knowledge to make them functional members of the society. These skills can be acquired in the universities, when adequate learning resources are provided by the stakeholders in the education system (Ukachi,2015). Education stakeholders are then expected to provide adequate resources to make learning more meaningful and connected to real-life situation at all times.

EIRs are increasingly playing critical roles in the educational lives of undergraduates in the Nigerian universities. These are made possible through the power of the Internet that makes e-resources to be accessible to the undergraduates in the various locations such as cyber cafe, home, hostels, media centres just to mention a few (Manoj, Kumar, Gauri, and Bimal,2011). The preponderance of these internet-based resources could become meaningful to education system, if students could have unrestricted access to the materials to facilitate teaching-learning process. Sivasubramaniyan and Batcha (2012) express that accessibility is the key to electronicresources that could be found in the ICT centres, documentation and media

centres as well as libraries. The principle guiding provision of EIRs to support students' learning requires that these interventions should really be accessible to undergraduates anytime, anywhere. The provision of appropriate EIRs in the learning space only becomes meaningful when the participants in the programme have unrestricted access to the interventions at the points of need. This would help learners in making appropriate decisions on how to effectively utilise these resources to enhance learning at different stages of the programme. On the long run, high degree of accessibility would engender sustainability in the system, as students would be able to get the best out of the learning resources provided for instructional purposes.

The level at which EIRs can be made accessible for instructional use could be determined by individual and technological factors as identified by scholars in information system. In the opinion of Shariful (2012), issues related to accessibility to EIRs could sometimes be influenced by the personal characteristics of the users, especially the undergraduates and information carriers. The personal characteristics of the undergraduates could include their attitude, perception, socio-economic background, physical or other psychological indices that could determine the extent at swhich users would effectively put available resources into optimum use. Personal factors like these could influence the level of accessibility to EIRs among undergraduates. For instance, students from poor homes might find it difficult to afford the financial implication of access some internet-based resources to support classroom instructions. On the other hand, students from wealthy parents could easily pay to access any form of resources that could be useful for educational purpose. In the same vein, physical structure of the users could go a long way in ensuring easy access to some specific educational facilities within the learning institution. Students with disabilities could find it difficult to gain access to some facilities in the libraries and documentation centers due to their specific or peculiar characteristics. These personal characteristics could hinder the level of accessibility to EIRs among undergraduates. The characteristics of the channels through which information flows could also hinder effective access by the users. Some channels or carriers require specific skills and competences to navigate the content, and this could deny undergraduates without such skills within the system many opportunities.

Scholars had also emphasised that the peculiarities of the contents of the EIRs and the overall information environment might also inhibit accessibility among the students. Some content are very easy to navigate and this could encourage students to

put the resources into optimum use. This could also improve the level of access among the students.Generally, undergraduates' characteristics like ICT competence, information mastery, attitude to technology, language proficiency and perceived relevance could also go a long way in determining the rate of access to EIRs within the education system. The specific features of some carriers like CD, DVD and flash drives could also be critical factors that could hinder access to information for academic purposes (Ankrah andAtuse, 2018). All these personal and carriers characteristics could affect the rate of access to information, especially educational resources among the undergraduates. Thus, educational stakeholders are usually encouraged to put these specific and general factors into consideration in the planning and implementation of information programme, especially within the libraries and media centres in higher institutions. The success and otherwise of any information programme could depend largely on these critical features of the users and information carriers.

It is important to stress that undergraduates need electronic information resources because of their curiosity and dynamism to get information to forge ahead in their various chosen academic discipline. Undergraduate students would have an increased need for academic information sources to complete their class assignment and research projects that usually require various types of sources and references. It is very important to understand the undergraduate's unique selection of information sources and the associated factor constituting their information use behaviour pattern. These enquiries are strategic in understanding the kind of supports that would be needed by these students in executing academic tasks at different levels. Undergraduates would require information from diverse sources and this could be provided by the internet-based resources through the EIRs. The students are mature minds with diverse abilities, and at this level of education, undergraduates require information from variety of sources to facilitate academic activities. Students at this level of education are expected to be furnished with requisite skills and competences to contribute meaningfully to the society. In this wise, there is a need for access to repository of information that could assist them in their study and research endeavours. This provides them with requisite information from the point of entry to the graduation stage. Thus, undergraduates would consistently require the capabilities of EIRs to access the repository of learning materials that are available on the Internet and utilise such materials for academic activities.

The undergraduates are students who have met the requirements of their chosen universities and being admitted through JAMB that serve as a regulatory body. The undergraduates' experience is characterised by strong preparation in their study, training and research. These categories of students can easily enhance their education and training through independent research mentored by their lecturers and particularly through their course advisers in their different levels. However, undergraduates must have completed their high school and preparatory curriculum that ensures that their programmes include courses required for admission into the university. It has been noted that undergraduates need information for their assignments, seminars and projects, just like entrepreneurs seek information to run and operate their businesses. Moreover, the undergraduates need reliable sources of voluminous information of various kinds such as books, journals, audio-visual and multimedia resources as well as electronic information resources (Henry, Jehu and Akpan, 2013). Undergraduates, among their exhibiting characters, are very inquisitive, innovative and seriously in search of fact. The nature of these students makes it imperative for them to be allowed to access large volume of information to satisfy their learning needs and aspirations. (2017) submits that undergraduates surf for information from the library, documentation, ICT and internet. Since the centres provide enabling environment for reading, researching and self-development, students at this level of education are consistently relying on the services provided by libraries and media centers to access and utilise available information for instructional purposes. It has been widely reported in literature that university undergraduates search for current information since they believe that information is the vehicle for development and personal curiosity. These students are interested in searching through print based needs for academic requirements such as class assignments, seminars presentation and examination.

Siddiqui (2011) reveals that the undergraduates in Lucknow University stated that the maximum number of undergraduates gives the first priority to seek information for examination purposes, for updating knowledge and seek information for preparing class notes. It is obvious that undergraduates in Nigerian universities seek information to prepare for examination, test and do their assignment. They mainly use print and non-print based resources such as books, journals, internet access, magazines, newspapers and e-books, e-theses, e-music, e-newspapers and a host of other forms of medium to access current information to satisfy their curiosity.

It should be noted that the frequency at which undergraduates in Nigerian universities make use of e-resources ranges from daily, occasionally, weekly, monthly and a host f scales. This indicates that undergraduates in the university systems make use of electronic resources at various degrees. This may be due to many factors such as ICT skills possessed by the undergraduates could increase the frequency of use; similarly, the accessibility and environmental factors that are favourable could be additional factors that could increase the use and frequency among the undergraduates (Amankwah, 2014) . Conversely, the low ICT skills, poor accessibility and unfriendly environmental factors could have adverse effect on frequency of use of e-resources by the undergraduates to advance teaching-learning process. This implies that effective utilisation of EIRs by undergraduates could be a function of many external factors and these variables are expected to be duly considered by the stakeholders in education, while planning and implementing any technology integration programme(Adeleke and Nwalo, 2017) . Undergraduates are consistently relying on the capabilities of EIRs to access current and up-to-date information within the instructional space. Thus, the onus lies on the stakeholders to provide enabling environment for students to effectively interact with learning materials and utilise such resources for learning and research activities at all times. Undergraduates' thirst for information can easily be satisfied with the preponderance of information available on the Internet. This implies that EIRs have the capabilities to provide relevant and appropriate information to the students anytime, anywhere.

Upkebor (2011) affirms that electronic resources have become strategic tools that undergraduates use in accessing library collection in their academic pursuits. The undergraduates depend greatly on electronic resources to boost their research and collaborate with their counterpart for intellectual growth. In other words, electronic resources have been contributing greatly to research endeavours and many undergraduates have discovered the merits of e-resources over other print based resources. Nigeria is fast moving toward new era in globalisation in all human endeavours including education sector. This greatly depends on the knowledge creation through e-resources accessibility among the undergraduates in higher institution. This simply implies that there is an urgent need for provision of infrastructural facilities that will encourage electronic resources accessibility and use of information sources in order to aid learning, research and studying among undergraduates (Ajegbomogun, 2014). The available resources in the libraries need to

be made accessible to the undergraduates in a way that would encourage these students to effectively utilise the materials to enhance learning and research at different levels.

Accessibility to information is necessary to the successful conduct of academic and research activities in educational institutions. Thus, in today's information economy where the processes of education are being driven by ICT, access to EIRs is key to facilitating effective and efficient learning in educational institutions, especially at the higher level of education (Okon, Ngulube and Onyancha, 2014). The Congressional Office of Technology Assessment, COTA (1995), as cited in Aramide (2014), explains that access to technology and technology-based facilities has multiple connotations ranging from computers in the classroom, EIRs in classroom, laboratories and libraries, ratio of staff/students to computer-based resources, computers and related resources at home, current hardware and software, and location of computer-based resources. These nomenclatures are meant to describe the strategic place of technology and internet-based resources in the learning and research. These resources are strategic in providing adequate access to relevant information that could allow students to engage in deep learning and critical thinking within the instructional process.

Obviously, for students to use electronic information resources, there must be unrestricted access to the available learning resources at all times. In spite of the great efforts by the stakeholders in acquiring educational resources for the use of students, undergraduates are still faced with the challenge of accessibility and this has been affecting the realisation of the objectives of EIRs within the learning space (Russek, 2001 cited by Aramide, 2014). Aramide (2014) opines that mere acquisition of learning facilities by different institutions across the world as the starting point in the use of EIRs by the students. It had been argued that mere acquisition of resources does not necessarily translate into effective utilisation by the users. Many institutions focus attention on the acquisition of learning resources without considering the channels that would facilitate access to the available learning materials. Since EIRs are internet-based resources, there is a need to ensure that students have necessary information as regards accessibility to engender effective utilisation. Available learning resources only become meaningful in instructional process when students are given the required opportunity to access the content for learning and research activities. This makes the issue of accessibility central to the effective use of EIRs in

the tertiary education system. There is a need to ensure that students are able to interact freely with the available EIRs to collaborate with other colleagues across the world. Thus, the onus lies on the library staff to provide students with adequate information on the available channels to access the EIRs for learning and research. This would make way for effective utilisation of electronic resources by the undergraduates across the globe.

Moon, Hossain, Kang and Shin (2012) believe that access to appropriate learning resources on the internet remains central for students to make efficient decisions in their academic and research activities and collaborate with other students in different parts of the world. Access to EIRs in the education system would afford students the opportunities to utilise such materials to complement face-to-face lecture instruction. Moreover, access to and use of EIRs is considered very vital inefficient academic and research process as this would be to the advantage of the users especially the undergraduates (Hoq, 2012). Aina (2012)argues that access to relevant information including EIRs is critical to research in Africa and the world at large. Considering the level of development in different countries in Africa, there is a need to produce global citizens, who would be able to utilise skills and knowledge to develop the societies. This implies that the students are expected to consult variety of learning materials to examine issues from different perspectives. This feat could easily be achieved when undergraduates are able to access appropriate information to enhance learning and research. EIRs provide undergraduates with the opportunity to access huge repository of information on the internet, even from the comfort of their homes. EIRs ensure flexibility in access, as students are provided with the opportunity to access relevant information from any part of the world. This can be done regardless of the barriers of distance and time. Undergraduates could access EIRs with their computers and mobile devices from any part of the world.

Institutions across the world are increasingly making facilities available to ensure effective use of EIRs by the undergraduates. However, it has been reported that the provision of technological infrastructures in most Nigerian universities is low when compared with what is obtainable in developed countries of the world (Okon et. al., 2014). This implies that many universities in the country do not have adequate capacity to invest in the emerging ICTs to support efficient provision of EIRs for the students, especially at the higher education level (Urhiewhu, 2014). The consequence is that the amount of contacttowardsthe usage of EIRs was established as low among

the users. Since many universities in Nigeria find it difficult to provide equitable access to ICTs, particularly robust and reliable Internet connectivity to global information resources, lack of adequate to EIRs had been a recurring problem in the instructional process. In some instances, electronic resources are procured by learning institutions to facilitate learning and research, but there are stringent measures that restrict undergraduates from effective utilisation of these materials. In such cases, the specific and general objectives of procuring EIRs would be difficult to realise. Effective utilisation of EIRs is a largely a function of accessibility among the undergraduates.

Okon, et al. (2014), affirmthat there exists a significant positive correlationbetween the degree of accessibility and utilisation of EIRs among students in Nigerian universities. This implies that increase in access to EIRs would lead to increase in the usage of the information resources. Kabiru and Usman (2020) assert that there would a significant improvement in the performance of students in Nigerian universities if they have access to EIRs just like their counterparts in developed countries. Furthermore, Kabiru and Usman (2020) affirm that students in across universities in developing nations will perform well, if they are provided with adequate access to and use EIRs for their academic and research work. The implication is that students' access to EIRs could be determined by the level of development and resources available in the countries. Developed countries have adequate resources to allow undergraduates access the available EIRs for learning and research activities. This makes it easy for these countries to produce global citizens that would be able to compete favourably with their counterparts in other countries of the world. On the other hand, learning institutions in developing countries are usually faced with enormous challenges of inadequate resources to ensure access to available EIRs within the learning space. This makes it practically difficult for undergraduates in these countries to effectively utilise educational resources to enhance teaching-learning process, especially at the higher level of education.

Segana (2017) posits that EIRsarepriceless investigative apparatuses which supplement print resources in libraries and media centres. These valuable resources offer contact locations as well as other vital information that the undergraduate would need to interact with the learning materials. They also provide access to current information as these are updated frequently. EIRs enjoy high patronage from scholars and students due to the fact that the content are regularly up-dated with relevant

information for learning and research endeavours. Through their various search techniques, EIRs provide extensive links to explore additional resources or related contents that would be useful for the undergraduates and also their lecturers. In addition, EIRs are appropriate to use as they afford consumers contact with resources from libraries, cybercafés in the comfort of their homes anytime of the day. The implication is that utilisation of EIRs by the students is not usually hindered by the barriers of distance and time as obtainable in the print materials. Dhanuandan, Esmail and Nagarajan (2012) reported that significant progress had been recorded in the areas of acceptance and usage of electronic journals in the university, especially from 1998. This implied that students had been able to access relevant information through EIRs to support teaching-learning process.

Ankrah and Atuse (2018) relatedly studied the use and familiarity with EIRs and found that 61.25% students were familiar with electronic information resources. Statistics shows that 27.50% of the students used the computer daily while 5.63% had never used it. A small percentage of the students, that is 25% of them, used CD-ROM, 33.13% used the Internet 38.13% used e-mails, 36.87% used search engines, and 21.25% used VERSACE website daily.The primary responsibility of any university is to provide qualitative and quantitative services in line with the mission and vision of the institution. (Abdullahi, Igbinovia and Solanke (2015) advised that library facilities and amenitiesmuststandadequately in quantity, deepness, variety and recency to backing the programme of an institute. In addition, libraries in universities are habitually regarded most important in universities. On this, it can be asserted that the materials and facilities available in recognized information structures must be proficient for research activities in the institutions. Aina (2014) submits that the onus lies on the management of university libraries to provide adequate information as regards all kinds of format, electronic journals, books, full-text journals, CD-ROM databases and Internet resources that are available within the system. This gives students the opportunities to understand the appropriate channels to follow in accessing EIRs and utilise such for academic activities.The entire library staff needs to work hard and ensure that students get adequate information on the list of available resources and how these materials can be easily accessed for instructional activities. This is most paramount for students, especially the new intakes, who might not understand the terrain of the school system.

These new students are expected to be duly guided by the library personnel to

effectively utilise EIRs in the library. The instructional terrain in the higher education is quite different from secondary and other tertiary institutions, due to the peculiarities of the students and the basic characteristics of the lecturers in the system. Thus, the new students require basic information about the new structure, with a view to operating maximally within the system. It is therefore important that these students are provided with relevant information on how to access the available learning resources in the library to support classroom lectures. This would afford students the opportunity to effectively utilise EIRs in the library to facilitate teaching and learning.Abdullahi, Igbinovia and Solanke (2015) posit that inadequate information on the part of the personnel makes it difficult for students to access available library resources and therefore hinders effectively utilisation of learning materials among students. It is obvious that contact with EIRs can enormously advance the students' attitude towards their learning and also improve their academic performance.

One of the primary objectives of an academic library is to provide relevant services to satisfy users demand. Libraries are established with the main aim of providing adequate learning resources to meet the instructional needs and aspirations of the entire university community. This is to ensure that all the critical stakeholders in the school system are able to access relevant information that would be useful in executing academic tasks. This assertion is supported by Omogbhe, Quadri and Kutu, (2020)who argued that today's libraries must strive to provide EIRs for users to complement print-based resources in the traditional library. It is germane to note that the advent of electronic resources has drastically reduced the degree of challenges faced by scholars and students in accessing information across different countries in Africa and other developing nations of the world. In the higher institutions of learning, the students remain strategic stakeholders in the efforts at integrating technology in information dissemination system. Students require relevant information on different concepts to support knowledge and competences gained in the traditional lecture-method classroom. It had been argued that the traditional face-to-face method of instruction in the universities remains unsustainable as the system lacks the capabilities to provide the required information for students across different disciplines. Thus, undergraduates require additional channels to get appropriate information to complement classroom instruction. EIRs had been touted as strategic tools that could provide adequate and up-to-date information to students for learning and research activities. These resources are readily available on the internet to

complement classroom instruction. Students could leverage the capabilities of EIRs to access relevant and appropriate information that would stimulate deep learning and critical thinking. In this wise, electronic resources are strategic to students' learning and research endeavours by providing viable channels to access relevant information and collaborate with other students across the globe. This would go a long way in ensuring that undergraduates are equipped with relevant knowledge and skills to function effectively in the modern society.

Akande (2011) asserts that it is important for university libraries and technology centres to make adequate provision for EIRs as these learning resources afford undergraduates the opportunities to access huge information repository which students require to realise their academic goals. Egberongbe (2011) summarised that user-friendliness and access to electronic information pose serious problem to effective utilisation of electronic resources by the undergraduates at the University of Agriculture Library, Abeokuta, Nigeria. The study revealed that respondents are ready to embrace the effective use of EIRs for academic activities and also social engagements. Many of the students also indicated that EIRs have the required potentials to enhance instructional process through the provision of relevant materials to support learning and research. The resources were considered easy to use to a large extent and students were satisfied with theirexplorationproductivity. The limitations recognised comprised inadequate quantity of stationsaccessible for usagenotwithstanding extra-ordinary request and poor energy stock. This implies that students in some Nigerian universities are ready to embrace the use of EIRs to enhance teaching-learning process. Thus, there is a strong need to ensure that appropriate channels are created to engender easy accessibility by students in the school. Undergraduates are expected to be properly guided on the existence of learning materials and to access them. This would ensure effective utilisation of EIRs by the undergraduates across different countries of the world, especially by the fresh undergraduates.

For the new intakes, the learning environment is quite different from secondary and other tertiary institutions. The instructional terrain in higher education system poses some challenges to the undergraduates and would therefore require some level of support to participate actively in the instructional activities. The new intakes and existing students require appropriate information on the availability of EIRs and these resources could be optimally utilised within the learning space.

Undergraduates are expected to be well guided on the mode of accessibility to EIRs and steps to take to ensure that the available resources are well utilised for academic purposes. In doing this, the library management should put up friendly environment for students to access these learning materials in the system. The personnel are required to exhibit positive disposition towards students' enquiries. The disposition of library staff towards undergraduates could go a long way in ensuring that students are encouraged and motivated to access and utilise EIRs for instructional activities. Negative attitude from the library staff would discourage undergraduates from using the available EIRs in the system. Therefore, library staff should be well trained on the rudiments of creating enabling environment for the students to access EIRs in the system (Akufo and Budu, 2019). The library personnel need to understand learners' characteristics and endeavour to meet the diverse learning needs and aspiration of the students. All categories of students in the library system should be catered for through effective services and adequate information. Library staff are expected to be adept in addressing instructional challenges that undergraduates could face, while access EIRs for academic purposes. This would go a long way in ensuring that undergraduates are given the opportunities to access the EIRs in the library system. In the long run, students would be able to put the resources into maximum use at all times.

The EIRs must not only be available but must also be of good quality in terms of relevance, functionality, and applicability in helping the learners to achieve their learning goals. Undergraduates must have timely access to the available educational resources whenever and wherever. This implies that these learning resources must exist in practice rather than on paper. It should be emphasised that availability does not necessarily translate to accessibility. Accessibility implies that learners are able to use the available materials with little or no restrictions. To achieve this, undergraduates need to be well-equipped with requisite information and competences to access diverse learning resources to facilitate classroom activities. Students need adequate information on how to access services like library services, ICT resources, counselling services and other crucial interventions that are required to make learning meaningful and reduce the rate of frustration in the system. Accessibility to resources and services should also be timely to entrench trust in the system. This makes EIRs rightly available to meet the immediate and future needs of the learners. A situation where EIRs are readily available but not accessible to learners does not augur well for effective higher education practices. Undergraduates need to have unrestricted access

to up-to-date information by leveraging the unprecedented capabilities of EIRs to support learning and research activities (Ada, 2013).

In order to engender adequate access and effective utilisation of EIRs within the library space, there is a need to give due consideration to the attitude of the library staff, who are the personnel that would interface between the library management and the users, especially undergraduates. The attitude of library staff had been considered as a strategic factor that could determine the level of friendliness in the system. Individual's attitude goes a long way in determining the disposition to a particular event or programme, and this could have ripple effect on the success or otherwise of the programme. Within the instructional system, the attitude and disposition of the key players like teachers and students could influence the outcome of the exercise. By implication, positive attitude from the library staff could create favourable atmosphere within the library system, which could influence many other activities along the continuum of information system. A positive-minded library staff would always be ready to offer necessary service to the undergraduates on the best ways to benefit maximally from the learning resources in the system. Students would be provided with relevant information about the available resources and the appropriate channels to access the materials. This would promote active interaction between undergraduates and library resources. When students are given opportunity to interact with the EIRs, they would be able to make effective use of the materials to enhance teaching-learning process.

On the other hand, a staff with negative attitude poses serious challenge to accessibility and utilisation of EIRs in the library system. A negative-minded staff would find it difficult to provide relevant information to the undergraduates on the availability, accessibility and utilisation of these learning resources to support instructional process. This creates unfriendly library environment that could discourage undergraduates from patronising library services and would negatively influence utilisation of EIRs within the learning space. Furthermore, these students also require adequate information on the available channels that could be used to access learning resources. All these would promote effective utilisation of EIRs by the undergraduates for learning and research activities. However, it takes library staff with positive disposition to provide these important services to the students. Thus, it becomes important to ensure that library personnel are adequately trained on the appropriate ways to provide relevant information to the students by creating enabling and friendly library environment for active interaction with the library resources. This

will improve the abilities of library in providing appropriate and relevant resources to the undergraduates to boost learning and research activities.

2.6 ICT skills and use of electronic resources by undergraduates

Skillis generally considered as a capability to carry out a defined activity or performance that is needed for undergraduates, which might include arrangement and execution of an action designed to attain and accomplish a given task. Skill is the capability acquired by the undergraduates through a long period of training to successfully complete a particular task (Sahu, 2013). Skills could be attained through personal efforts, personal development and career advancement. It is pertinent to mention that professional development consists of different forms of self-accomplished learning opportunities which include skills gained from college degree or formal coursework and training workshops that are meant for equip participants with requisite competence for perform tasks more effectively and become productive members of an organisation. However, there are various modes to achieve professional development which may include mentoring, coaching and communication of practice, lesson, study, reflective supervision and technical assistance (Ozioko, Echezona and Osadebe, 2012). These approaches should be well analysed in the context of organisational needs and aspiration, with a view to ensuring that available resources are well utilised for the benefit of a particular establishment. Modalities like mentoring and technical assistance had been identified as strategic in equipping participants with relevant skills to function effectively in the organisation. Acquisition of skills is important for individuals to become productive members of the organization. Employees with requisite skills are well positioned to develop a particular organisation. On the other hand, individuals with inadequate skills would become burden on the operation of an organization and would find it difficult to contribute to the development of the establishment.

It has been mandated for undergraduates in higher institutions of learning across the globe to possess necessary skills in addition to acquisition of ICT skills that must be continuously updated. Skill is therefore a practical dexterity in carrying out an action and as the intrinsic attribute and mental capability that governs how an undergraduate interacts with the world. An undergraduate with skill has the flexibility to perform any task with success. Skill could be referred to as competence that could be used by undergraduatesto execute tasks to promote problem-solving skills and

encourage research activities among the students. Therefore, skill is the process and capability acquired by the undergraduates through successful training.

Ukachi (2015) affirms that skill could be seen as pre-requisite for competence and the basis for personal and societal development. Citizens with the required skills would be able to contribute to the growth and development of the society and the world at large. It is therefore important to say that adequate skills are necessary before one can be adjudged to be competent. However, whatever school of thought is adopted, it is essential for undergraduates in Nigerian higher institutions to possess ICT skills for effective learning, studying and research. An undergraduate with deficiency in ICT skills would not be able to navigate the e-resources that are available in the libraries and other media centres. It is important to mention that libraries have therefore changed the entire library environment by altering the conventional structures to cater for the needs and aspirations of the 21st Century learners (Sharifu, 2012). Mahesh and Mittal (2016) assert that the revolution that is changing structures of the libraries has been more prominent in the recent years, especially with the emergence of information communication technology applications in libraries and these have transformed the ways and manners libraries operate and service delivery with efficiency to their various user. The revolution in ICT is increasingly impacting library services in positive ways. Technology is equipping libraries across the globe with capabilities to provide friendly services to different categories of users, especially at the higher level of education. ICT allows users to have access to diverse learning materials anywhere, anytime.

ICT has revolutionised virtually everything we do as human beings and as such, ICT skills are paramount for students to access and use information for instructional purposes and social engagement. Claro, Press, San Martin, Nonostroza, Valenzuela Cortes, and Nussbaum (2012) define ICT skills as the knowledge and capacity to solve problems of ICT in an electronic or digital environment. It means that functional ICT skills are prerequisite for undergraduates to navigate instructional content in Nigerian university libraries. These skills remain critical for all categories of students to interact with the learning contents that are domiciled on the internet. Students require access to myriads of information that could be found on the internet and this can only be achieved with appropriate ICT skills. Thus ICT skills are important for undergraduates to access and utilise online learning content by different categories of students within the learning space.

Anyin (2018) asserts that possession of ICT skills by undergraduates remains strategic not only in the academic situation but also for lifelong learning settings. This makes ICT skills imperative for undergraduates to function optimally within the instructional system. Different categories of undergraduates in the university require some level of ICT skills to be able to take active part in instructional process. Ukachi, (2015) suggests that in order to use the increasing variety of electronic resources available in the Internet, students should possess the essential abilities to seamlessly navigate the instructional content for learning and research. These abilities comprise rudimentary understanding of computer, expertise in using production software, electronic communication abilities as well as the Internet skills. Also, Ekong and Ekong (2018) refer to ICT skills as the ability that is appropriate for operating and navigating the potentials of information technology.

It has become mandatory for libraries in Nigeria libraries to key into new technology era that is moving across all sectors in human endeavours. Librarians are therefore required to systematically change their attitude towards the ways and manners services are being delivered to users. The personnel need tobe updated with latest development and acquire new skills as well as techniques for better and improved services for the benefit of the library users (Farahi and Gandhi, 2011). Quadri (2012) is of the view that libraries of nowadays are migrating their roles from the custodian of traditional information resources to provide a good service oriented in digital information resources to the library users. The implication is that library personnel should be trained on the best practices in handling information and relating with the undergraduates. The attitude and disposition of the staff could go a long way in determining the extent of access and utilisation of learning resources provided by the libraries. The staff should provide adequate information to the undergraduates on how to navigate the library terrain and access necessary information for academic activities. Students coming into the library are from socio-economic backgrounds with diverse learning needs and aspirations. Thus, it is important that library management provides a friendly environment for all categories of students within the instructional space. The staff need the requisite skills and positive attitude to relate with the students, with a view to facilitating effective use of EIRs by the undergraduates. The library personnel and the undergraduates are expected to be equipped with relevant ICT skills to be able to use EIRs effectively for teaching-learning process.

It is needless to mention that information communication technology skill is keyfor undergraduates to seamlessly navigate the vast ray of e-resources abound in

libraries, media centres and documentation centres. These are the requisite skills and competences that are imperative for undergraduates to access the available learning resources and utilise such for learning and research activities at all times (Anyim, 2018) . The ICT skills are the 21st century competences that should be possessed by the undergraduates to functional effectively in the modern society. These skills expose the students to the myriads of online resources that could enhance teaching, learning and research activities. Undergraduates with appropriate ICT skills would find it easy to relate with the instructional content on the internet and interact positively with students other over the world. This prepares undergraduates for the challenges of the 21st century society, where technology had pervaded all aspects of human endeavours. The implication is that students with requisite ICT skills would be able to function effectively with the modern instructional system. Undergraduates need the capabilities of ICT to navigate online instructional content and utilise learning resources for teaching-learning activities. This equips students with the competence to become active participants in the instructional process, especially at the higher level of education.

Undergraduates with deficiencies in knowledge of computers and internet would definitely be at disadvantage. It is becoming increasingly difficult for students without requisite ICT skills to function effectively in modern instructional setting. This is due to the fact that technology has pervaded all aspects of human endeavours and education sector is not immune from this technological revolution. The implication is that undergraduates without the required ICT skills might not be able to interact with instructional content and collaborate with other students from different countries of the world. The ability to locate information from e-resources is basically rested on the ICT skills undergraduates possessed (Oakleaf and Owen, 2010). Undergraduates with requisite ICT skills would find it easy to relate with online instructional content and utilise EIRs for learning and research activities. On the other hand, students who are not ICT compliant would find it extremely difficult to cope with the ever-increasing challenges of the digital instructional setting. Issa, Amusan and Daura (2009) assert that undergraduates in Nigeria universities critically need to have knowledge of ICT as this would put them at a comfort level to make use of e-resources to make an adequate decision on their academic endeavours as well as other mundane activities. Requisite skills in ICT would equip undergraduates with appropriate competence to access learning resources and utilise such materials to improve learning and research at this level of education.

Omosekejimi, Eghworo and Ogo (2015) stress that efficient and effective utilisation of EIRs among the undergraduate in Nigeria universities mostly depends on the possession of relevant Information Communication Technology skills as these skills would enable them to use the e-resources for their research and studying activities. ICT skills refer to the comfort levels an undergraduate has with utilising computer packages and othercomputer-related devices for instructional activities. Equally, application of ICT skills by undergraduates in searching for research literature could be pronounced as the degree to which undergraduates are proficient inusing electronic resources or use computers to uncover pertinent sources and information for educational or exploration endeavours. Basically, ICT skill is related to the undergraduates' ability to be accustomed with the use of several software programming and computer networking, which could enhance teaching, learning and research (Emwanta and Nwalo 2013).

Computer usage for academic work or exploiting the capabilities of EIRs strongly depends on the user's knowledge of the search system and procedure. It could also depend on the users' abilities to identify the information problem at the starting point of the search and prepare mechanism to overcome such challenges. Students' ability to use computers and computer-related devices has generally become an essential part of education systems across the world. These skills involve a set of acceptable practices that form the core ICT skills packages in the education system. The skills involve students' abilities to work with spreadsheets, word processors, database and PowerPoint presentation (Nkechi, 2015). These software are strategic in accessing and utilisation of learning resources on the internet. Students, therefore, need these critical skills in ICT to interact productively with learning content and interact with other students across the world.

These skills are strategic to the effective utilisation of online learning resources and there is a need to develop ICT skills of undergraduates, with a view to allowing them take active part in the instructional process. Students who are not ICT compliant would find it difficult to interact with online instructional content. This makes it difficult for the students to effectively access EIRs and utilise the materials for classroom instruction. It has been argued that EIRs have the abilities to complement the traditional classroom instruction by providing access to diverse learning materials that could broaden students' horizon and equip them with relevant skills to function effectively in the 21st century schooling system. However, it

becomes practically impossible for undergraduates to function in this kind of digital learning environment without a full grasp of ICT competence that would allow them access the instructional content on the Internet. This makes it imperative for stakeholders in education to ensure that adequate facilities are provided to equip undergraduates with relevant ICT skills to become active participants in the instructional process.Undergraduates are to be well motivated to understand the instructional benefits that are derivable from using EIRs to support classroom instruction. Also, there is a need to ensure that these students are equipped with requisite ICT skills to be able to access EIRs for instructional purposes. This would give impetus to the effective utilisation of EIRs in the education setting. The general and specific objectives of using EIRs in the education system would be difficult to realize, if undergraduates do not have the required ICT skills to interact and explore the resources on the internet.

Electronic resources are the products of Information and Communication Technology; so their maximum use is a factor of expertise and experience on the side of the undergraduates. In other words, ability to use EIRs depends on possession of basic and applied computer skills, knowledge of the available resources, and how to use them. The undergraduates must be versatile with ICT skills as these would give them the opportunity to access information. Those who are computer literate among them would feel more comfortable using electronic resources than those who are deficient in the ICT skills. Israel and Edesiri (2014) explained that ICT skills transcend the use of software or operating systems. The skills also go beyond searching, downloading and keyboarding skills(Ekong and Ekong, 2018). The authors believe that the basic ICT skills involve undergraduates' abilities to use their knowledge to find, develop, analyse and present information, in form of text, numbers and images that could convey reasonable meanings about a particular concept. These skills involve the capabilities of the students to properly identify the require information from the diverse information sources that are available online. This requires strategic effort on the part of the students as the internet is a repository to a large volume of learning materials for different areas of specialisation.

The Internet comprises huge volume of information to satisfy the needs and aspirations of many users. These users cut across different disciplines and they require specific information to meet their needs. Therefore, undergraduates are expected to acquire requisite skills to identify and select appropriate information that is relevant to

the subject matter. Many students are usually confronted with how to deal to the huge information on the Internet at a time. The preponderance of information on the internet could pose serious challenge to effective utilisation of learning resources by the learners. Students are faced with the challenge of selecting the most appropriate form of information that would assist in enhancing teaching-learning process. Therefore, undergraduates need specific skills to identify and select the most appropriate information from the EIRs available on the web for learning and research purposes. Students with inadequate skills in this area would be carried away with the euphoria of using technology to learn and find it difficult to make appropriate use of the available resources for academic activities. This category of students would waste a lot of time on the Internet without meaningful output at the end of the whole process. On the other hand, undergraduates with requisite skills in identifying and selecting appropriate learning resources will be able to utilise EIRs effectively for learning and research activities.

ICT skills are considered very necessary for students in today's emerging knowledge society to provide them with the ability to solve increasingly complex problems in a variety of knowledge-rich domains, participate in knowledge work as well as engage in various networked 'activities'. In today's society, ICT skills have become crucial for undergraduates to function effectively in modern learning space. The importance of these skills to students and teachers cannot be over-emphasised and students require the skills to leverage the capabilities of technological devices to facilitate instructional process. Undergraduates need ICT skills to use technological tools like computers, I pads and other mobile devices for instructional activities. It is important to note that these devices had become integral part of the 21st century learning space. No students can participate actively in the classroom without these devices and it requires that undergraduates are equipped with ICT skills to effectively utilise the tools for instructional activities.

In the recent time, the concept of ICT skills had been the subject of scrutiny in among various scholars (Poelmans, Truyen, and Stockman, 2012). Students need to have sufficient ICT skills to work productively with electronic-based resources and new technologies on the Internet (Sharifu, 2015). These skills are critical to ensure that output from learning institutions are able to function effectively in the digital world. The modern learning environment requires that students are able to navigate various internet-based resources to support classroom instruction and execute

instructional tasks.The modern instructional tasks require undergraduates to possess the capabilities to operate computers and computer-related devices, as well as navigating learning content that are domiciled on the internet. Students can only utilise these learning materials when they are equipped with ICT skills and competences to use EIRs for instructional purposes and social engagement.

It is therefore important to mention that for different categories of undergraduates to be successful in their academic pursuits, there is a strong need to acquire functional ICT to effectively use computers and other ICT devices to perform various instructional tasks. Such tasks includeability to navigate applications, the competence to create and modify documents and some basic typesetting skills which are critical to access and effectively utilise EIRs for instructional activities. It is important to note that students need to understand the strengths and weaknesses of various technologies, with a view to determining the appropriate devices and online content for their learning needs. The implication is that not all resources on the internet are appropriate for a particular concept. Part of the ICT skills to be acquired by the undergraduates includes the ability to identify the strengths and weaknesses of diverse technologies and identify the most appropriate technological devices for a particular instructional activity.

Nkechi, (2015) observes that undergraduates require appropriate ICT skills and competences to ensure that instructional content remains flexible and secured in accordance with the requirement of the digital learning space. The students need to acquire new knowledge and skills to systematically connect new information to existing knowledge, with a view to ensuring that internet-based resources are used to strengthen the instructional process. It is important to note that EIRs are meant to complement classroom activities and therefore, efforts should be geared towards ensuring that the connection between classroom content and EIRs are maintained and sustained throughout the instructional process. They need to know how to analyse, develop habits of learning and collaborating with other students in different countries of the world to put information resources into maximum use. Ekong and Ekong (2018) posit that students can easily acquire ICT skills through trial and error method, assistance from colleagues and friends and self-instructional abilities. Whatever the approach of acquiring the skills, it is important to note that undergraduates in the digital era would find it to survive without ICT appropriate skills.These skills are pre-requisite to effective utilisation of EIRs to enhance learning activities as well as

propel research abilities among the students.

ICT skill is at the threshold of becoming an important criterion to be considered in the acquisition and utilisation of EIRs among the undergraduates. These skills allow students to access instructional content even from the comfort of their homes. In the traditional information system, access and utilisation of educational resources were hindered by time and space between students and the learning content. However, with the advancement in Information and Communication Technology, students have been afforded the opportunity to navigate internet-based resources without temporal and distance restrictions. This makes it easy for undergraduates to access and utilise EIRs anytime, anywhere. Possession of appropriate ICT skills makes it possible for undergraduates to easily overcome the barriers of time and distance in information system. Essentially, the undergraduates must develop the inherent skills to navigate the EIRs of the libraries with the required skills to maximise the potential of ICTs. Thus, it is necessary that undergraduates endeavour to acquire ICT skills to be able to use EIRs maximally.

Shariful (2015) places emphasis on the need for students to acquire relevant knowledge about computer, how the device functions, how to input and retrieveinformation from it, and possess thecapability to choose appropriate information for learning and research activities. He also added that there is a need for students to understand basic elementary programming, communication skills, ability to create database and the basic knowledge of how to use messaging tools like fax and emails to engender cross-fertilisation of ideas.This would allow undergraduates to collaborate with other students across the world and solve personal and societal problems. It is expected that students with required technological skills would be better positioned to leverage on the capabilities of EIRs in gaining insight into different perspectives of scholars around the world. Also, undergraduates with relevant ICT competences would be able to interact with other students across different regions of the world. This promotes collaboration and teamwork among different categories of students worldwide.

Abbas and Song (2020) reported that new intakes into the University of Botswana were largely considered to lack basic ICT skills and this systematically created challenges for the institution in terms of the students' ability to select course programmes and registration of courses. The implication is that students with inadequate technological skills would find it difficult to navigate the institution's

portal to execute basic administrative and academic tasks. It requires students with relevant ICT skills to properly register for courses and select the appropriate programmes. The reason is quite obvious many institutions of higher learning across the globe are increasingly relying on the affordances provided by online platforms to coordinate administrative and academic activities, with a view to reaching out to all categories of students in different parts of the world. Nkechi, (2015) observes that the degree of ICT skills possessed by student could drastically influence the use of ICT for academic activities. Appreciable use of ICT by students may be hindered by lack of adequate knowledge and skills in ICT as identified by many scholars across the globe. Possession of adequate skills in use of ICT is non-negotiable for students in tertiary institutions to have access to EIRs available for them for academic and social engagement (Ojeniyi and Adetimirin, 2013). These skills are strategic to ensure that students are able to access the available EIRs in the libraries and media centres.

It is therefore important that undergraduates are exposed to ICT skills acquisition training to improve the use of e-journal and other online learning resources. Scholars are consistently advocating for the need to train undergraduates on the basic skills in ICT, with a view to acquiring requisite competences to utilise learning resources on the internet. Undergraduates require adequate training to acquire relevant ICT skills to effectively navigate online content. This would enable the students to easily access the content and utilise available EIRs for instructional activities. The onus, therefore, lies on the stakeholders in education to ensure that adequate facilities are provided to train undergraduates on the rudiments of using EIRs for learning and research activities. This would systematically improve the rate of utilisation of EIRs in the instructional process and could also promote deep learning and critical thinking skills among the students. The resultant effect could be improvement in students' learning outcomes at the end of instruction.

Furthermore, Ugwu and Orsu (2017) noted that many undergraduates have the wrong type of ICT skills for academic purposes. The author asserted further that students may be experts in the use of social media platform such as (WhatsApp, webchat, palmchat, 2go, Facebook, twitter, etc.) but they may not have the skill in attaching a document to an electronic mail or creating an essay with word processing software. Although students are increasingly using technology for social activities, many of them might find it difficult to utilise such for instructional purposes within the learning space. Scholars believe that ICT skills to be acquired by the students

should be directed at effective use of EIRs for academic activities. The training should include relevant procedures that are needed to be followed to ensure that students utilise ICT skills acquired for instructional activities. The fact that students use ICT skills for social engagement on social media platforms might not necessarily translate to effective use of technology in the instructional process. Thus, stakeholders need to ensure that adequate training are organised for undergraduates to use ICTS skills to access and utilise learning resources on the internet. This would ensure that students are able to access and utilise technology to enhance teaching-learning process.

Considering the strategic importance of these skills in effective utilisation of learning resources in the library, experts had emphasised that students' skills can easily be improved upon by adequate training on the rudiments of using technology in instructional process. It is important to note that these youngsters live in digital environment and understand the language of technology in executing tasks. In most cases, young people use technology for un-instructional purposes. This is easily manifested in the way people exchange opinions and ideas on social media platforms, especially among the youngsters in the society (Quadri, 2012). The young people in the society are usually adept in the use of technology for social engagement and other purposes that are not connected with classroom instruction. Individuals in the society are increasingly dependent on the capabilities of social media to get information and interact with other people in different regions of the world.

However, using technology for social interaction is quite different from the use of digital devices for classroom instruction. It should not be assumed that students would be able to utilise technology and technological devices for instructional purposes the way they do for social engagement. There is a difference between the use of technology for classroom instruction and social engagement. The use of technology for instructional purposes involves systematic procedures that are tailored towards achieving the stated instructional objectives. The characteristics of the learners are also considered, when planning and implementing technology integration programme at different levels of education. This makes it important for undergraduates to be adequately trained to acquire relevant ICT skills, which would enable them properly utilise technology and technological tools to enhance teaching and learning within the university(Sejane, 2017). It is imperative that different categories of students within the school system are allowed to gain insight to the fundamentals of using ICT-related devices and platforms for learning and research

activities. This involves the ability to select appropriate ICT tools and devices for instructional purposes. This would be based on several factors including learners' characteristics, the content of instruction, availability of resources and the nature of academic activities to be executed. Undergraduates are expected to be exposed to adequate ICT skills to make appropriate choices in the process of selecting materials and devices to be used in accessing and utilising the available EIRs within the library system. These skills would enable students utilise learning resources in the library in effective and efficient manners.

All the benefits accruable to the acquisition of EIRs in the library system could impact positively on the teaching-learning process and improve research skills of undergraduates. However, these instructional benefits are not achievable in a situation where students are confronted with inadequate ICT skills to select maximise the use of these resources for learning and research. ICT skills would promote accessibility among the undergraduates as these students would be able to understand the appropriate channels to get relevant information within the system. Apparently, undergraduates require ICT skills to improve their competence in accessing EIRs that are situated in the library system. Also, the aforementioned ICT skills are strategic for effective utilisation of EIRs for different academic activities. This implies that acquisition of ICT skills is strategic within instructional process to ensure proper accessibility and adequate utilisation of available resources within the library system.

Scholars had advocated for the need to ensure that practical training should be organized for all categories of undergraduates in the universities. This is particularly important for the new intakes within the system, with a view to ensuring that students are able to adjust to the new system and interact with the available learning resources in the library. The training needs to be hands-on, in order to afford undergraduates acquire necessary skills that would be useful in accessing and utilising EIRs for academic activities. When undergraduates are exposed to the skills in using technological devices and internet platforms, it becomes easy for them to access EIRs and utilise such for learning and research activities. This would go a long way in ensuring that the fundamental objectives of acquiring EIRs within the library system are adequately realised. This provides a good justification for huge investment on acquisition of these resources to enhance teaching-learning process at this level of education.

This practical training is expected to equip students with the required skills

and competences to participate actively in the instructional process. At the higher level of education, undergraduates need different skills to succeed within the instructional process ranging from intrapersonal skills, interpersonal skills, collaborative skills, ICT skills among other critical skills that should be developed along the continuum of teaching-learning process. All these skills work together to equip students with relevant competences to be active participants in the classroom activities (Adeleke and Nwalo, 2017). However, ICT skills remain central to the acquisition of other important skills within the learning space. In other words, ICT skills could help in the realisation of the objectives of acquiring other skills to assist students in becoming functional members of the community. ICT skills could help in developing collaborative skills of the undergraduates.

The implication is that technological skills could strengthen exchange of ideas and information among the students in the classroom. The power of technology could help to encourage student-student interaction in the classroom. Also, the teacher could leverage the capabilities of technology to improve students-teacher interaction and cross-fertilisation of ideas among the students. Thus, students with adequate ICT skills would be better positioned to adopt the power of technology in promoting interaction within and outside classroom setting. In other words, the critical stakeholders in education could easily leverage the power of ICT to entrench active interaction among different categories of students within the instructional system. This makes ICT skills to be integral part of 21st century learning system, where learners live in media-saturated environment. These skills are strategic to effective participation of students in classroom activities. The skills are also important to ensure active interaction among the students and between the students and learning materials. It is important to note that undergraduates need to interact with the learning materials within the classroom setting for learning to be effective and productive.

Beyond this, there is a need encourage and sustain students-materials interaction outside the classroom setting. Teachers need to encourage undergraduates to interact and utilise learning materials situated in the library and other media centers to support classroom instruction. There are huge learning resources in the library that are domiciled on the web and students need to actively interact with these resources and utilise them effectively to promote teaching and learning activities. This kind of interaction with online materials would be practically impossible without adequate ICT skills that could help students to effectively navigate online content like EIRs and

other internet-based information repository. Thus, students need to develop these skills to interact with learning materials within and outside classroom setting. The onus lies on the lecturer to encourage undergraduates to give premium to the process of acquiring these skills, with a view to making them active participants within the instructional process. Undergraduates with required ICT skills would be able to access and utilise learning resources within the learning space and outside the classroom setting.

In the same vein, it is imperative for school management to organise capacity building for the lecturers on the rudiments of ICT skills in facilitating teaching and learning activities. This would place them in better position to encourage undergraduates to acquire relevant ICT skills to access and utilise EIRs in the library and other media centers within and outside the school environment. Also, undergraduates require adequate training on the acquisition of basic ICT skills to interact with online materials and utilise EIRs effectively within the library system.

2.7 Environmental factors and use of electronic resources by undergraduates

The specific characteristics of the undergraduates at the higher level of education require that they are provided with relevant information to enable them meet the ever-increasing challenges of the modern society. The development in the modern society necessitates the need for undergraduates to be equipped with adequate skills and knowledge to confront the challenges posed by the digital society. The inability of the lecture method of instruction widely adopted in universities to provide undergraduates with adequate information and learning resources implies that students would have to search for additional sources of information to solve personal and societal problems (Akufo and Budu, 2019). It has become practically impossible for lecturers in the universities across the globe to provide students with adequate information to become functional members of the digital society. Undergraduates require more information than what the conventional mode of teaching could offer and this makes it imperative to search for other sources of information to get current and up-to-date learning materials that could be used to complement classroom instruction. This makes life easier for undergraduates as they would be able to get different perspectives to a particular concept and also collaborate with other scholars across the globe to solve regional or world problems.

Thus, it is expected that undergraduates would require access to huge volume of relevant information, as provided by the school management through libraries.

Within the library system, different channels are provided for students to access information and available learning resources. In the higher education levels, learning materials are made available for undergraduates to support the classroom activities and solve societal problems. The print materials are usually provided to allow students get additional information to boost their reading and mental dexterity. It is expected that this would improve their learning and research abilities to solve different problems within the instructional space. These print materials had been used over the years to engage undergraduates in instructional activities within and outside classroom setting.

However, with the increasing demand for relevant and up-to-date information by the undergraduates, it is increasingly becoming impossible for the print materials to satisfy the information needs of these students. Students in the modern instructional setting are no longer satisfied with the information provided by the print media and this necessitates the need for more robust channels that would give huge volume of information to different categories of students within the instructional setting. As a result of their peculiarities, undergraduates require information from different sources, with a view to broaden their knowledge and skills to solve instructional and societal problems. Thus, library management relies on the affordances provided by electronic resources to provide unrestricted information to the students at this level of education. These library collections provide students with relevant information to conduct research and execute instructional activities without limitations usually confronted with the print materials (Borteye and Dadzie, 2015). This requires that libraries across the globe become more proactive and assume new roles in information system. The library management needs to find ways of ensuring that the new challenges imposed on the system by the increased level of enrolment and higher expectations by the students do not overwhelm the entire information process. There is a need to expand the roles of libraries to incorporate the increasing demands for relevant and up-to-date information by the users, especially the undergraduates at the higher level of education. This should paramount in the planning and implementation of information process within the library system. Different platforms are being used to improve access to information by the students and the momentum should be sustained to ensure that library system is able to cater for the peculiar needs of the 21st century students. Scholars across the world had emphasised the capabilities of EIRs in allowing library system caters for the educational needs and aspirations of the

undergraduates in the university. These resources have been touted as positive response to the increasing demand for relevant information among the undergraduates as well as their lecturers.

Integration of EIRs into the library collections remains is important to the library management and undergraduates in the universities. When the access speed is fast enough and appropriate facilities are made available, EIRs could be veritable substitutes for the print materials that are subject to the barriers of time and distance. The instructional constraints posed by the print materials in the traditional library setting could easily be surmounted with the systematic integration of EIRs in the library collections. Sejane (2017) asserts that library system has witnessed unprecedented changes as a result internet revolution and this had made it possible to access information from any part of the world without the restrictions imposed by time and distance. This implies that EIRs could be integrated in the library to overcome the instructional problems associated with the traditional setting. This makes EIRs to be relevant to the modern instructional setting, where students are pleased to learn and execute instructional tasks with the use of technology.

The use of EIRs within the learning could be influenced by human and environmental factors and all these factors need to be considered by the stakeholders in the field of education. Environmental factors are all the physical, psychological, sociological and technological factors that are found in a work environment. Environmental factors can either be an impetus or a hindrance to the students' use of EIRs. The constant or erratic power supply is one of the environmental factors that might touch the usage of electronic information resources. Hence, the educational and investigation demands of students' require that they learn in the comfortable, conductive and relaxed atmosphere if their performance is to be enhanced and maintained. Adequate attention to environmental factors is essential for learning in any university. The physical environment conditions of a library are as vital as the resources that a library can count upon. Availability of appropriate resources could only be meaningful, if conducive environment is created to enhance effective access and utilisation by the users.

It is important to note that the environment where library is located could determine, to an extent, the degree of accessibility and utilisation of learning materials for instructional activities. The arrangement of seats, for instance, could affect the rate of accessibility of EIRs within the learning space. The sitting arrangement could

determine how students would access and use library resources, especially electronic resources for instructional purposes. When seats are not well arranged in the library, it becomes difficult for undergraduates to access the available materials for academic activities. This would have negative effect on the level of utilisation of EIRs in the library system.

Environmental factors include physical facilities such as library furniture and lighting, ventilation, noise control and arrangement of seats. These are variables that are likely to affect the usage of the electronic resources in libraries. Saka, Aremu and Adedeji (2012) submit that an ideal learning environment in the library system can be achieved when all the critical factors that have to do the environment are considered before planning and implementing information system procedures. These factors are strategic to the successful implementation of information process, especially within the library setting. Successful implementation of information process in the library is partly a function of enabling environment that could allow students to access and utilise available learning materials for instructional purposes. Oyedum and Nwalo (2011) reported that in some selected Nigerian universities, libraries are properly illuminated as 61.6% of the respondents agreed and strongly agreed to the presence of adequate ventilation in academic libraries.

Library resources are better utilised when relevant environmental factors are available and adequate to esteem users. The configuration of the library space and the availability of these infrastructures are critical to effective utilisation of EIRs by the undergraduates. It is important to note that adequate arrangement of facilities could encourage undergraduates to visit media centres, documentation centres and libraries as students would find it easy to utilise available resources for academic activities. This implies that the arrangement of the physical facilities could influence the decision of undergraduates to utilise library resources at any point. On the other hand, irregular arrangement of facilities in the library could put undergraduates in awkward position and discourage them from making effective use of learning materials, especially EIRs for study and research endeavours. This emphasises the pivotal roles of environmental factors in the utilisation of EIRs among undergraduates, especially in this part of the world, where limited resources are available for infrastructural development in education and other critical sector of the economy.

Ajayi and Aramide (2012) asserts that environment encompasses all factors germane to the smooth functioning and operations of an organisation. The implication

is that environmental factors could be considered as all infrastructural elements that could create enabling environment for effective utilisation of EIRs in the libraries, media and documentation centres. These are the environmental elements that could hinder smooth access to the available EIRs in the libraries by the undergraduates. The availability of these resources and enabling conditions surrounding the facilities would determine the extent of use by the users. When the physical environment of the library is conducive, undergraduates would be encouraged to make optimum use of the educational resources to update their knowledge and skills in critical concepts that would make them to be functional members of the society and the world at large. Conducive environment would improve mental and psychological status of the undergraduates and therefore, result into effective utilisation of EIRs for productive academic tasks.

Saka, Aremu and Adedeji (2012) conclude that the physical environments of universities are major factors that determine university undergraduates' performances in their studies. Library environmental factors could be referred to as the physical, social, political, psychological and personnel activities of a university library that can influence the usage of electronic information resources. Specific examples of environmental factors are the available furniture and its arrangement, electricity supply, lighting facilities, ventilation and cooling systems, noise level, library opening hours, building design and aesthetics and, library personnel attitude to undergraduates. All these play prominent roles in the usage of the library and its resources by the undergraduates. The terrain of the libraries and other physical infrastructures could influence the level of engagement of undergraduates with the instructional content. These environmental factors could determine extent of attention students would give to the content and this goes a long way in impacting the level of learning outcomes in terms of performance and attitude to the course. When enabling environment is created for users to interact with learning materials, it would promote deep learning and active engagement with course content.

Undergraduates in this kind of environment would find it easy to understand the subject matter and apply same to solving personal and societal challenges. Apparently, environmental factors that promote active learning and engagement with instructional content would prepare undergraduates to become active participants in solving problems within the school setting. On the other hand, when the arrangement of available facilities is difficult for users to navigate, effective utilisation of resources

becomes herculean. In this kind of setting, it is difficult for undergraduates to seamlessly navigate the terrain and access available resources. This would reduce the level of utilisation of EIRs by undergraduates and other library users. This further gives impetus to the strategic roles of environmental factors in the effective utilisation of EIRs by undergraduates. This is why scholars are advocating for the need to ensure adequate provision for enabling environment, to encourage effective utilisation of EIRs among undergraduates for academic purposes. It is believed that this effort would go a long way in reducing to the barest minimum, the challenges confronted by the students in accessing and utilising available EIRs for learning and research.

Amusa, Iyoro and Ajani (2013) stated that technical, human and organizational environments are the components of the work environment of any organisation or institution. The technical environment includes implements, apparatus, structure and otherprocedural elements while the human environment includes contemporaries, crew and workgroup, dealings, the management and controlling. The organizational setting includes system procedures, practices, values and philosophies. The totality of these environments within the context of educational institutions may influence the use of EIRs by students. The physical environment serves as a catalyst for students and enhances their academic performances and zeal to study for a longer period of time. A cool atmosphere where air conditioners are in place and functioning, supported by comfortable chairs and tables, good lighting and ventilation would enhance the effective library use by students. Ajayi and Aramide (2012) identified factors influencing the use of EIRs to include institutional, instructional, technical, environmental and personal factors. There are lots of pressures on the limited resources in the developing countries of the world. This had resulted to low level of infrastructural development and poor standard of living among the people in these regions of the world. Thus, educational stakeholders need to prioritise the provision of enabling environment that would justify the huge investments on the acquisition of EIRs in the university libraries

Saka, Aremu and Adedeji (2012) identifies basic environmental hindrancesthat could inhibit effective use of EIRs within the learning space to include inadequate accessibility to basic technological facilities in the library system, poor Internet connection and inadequate computers and computer-related devices. These factors determine the friendliness of library environment for the users, especially students at the higher institutions of learning. The library environment should be

improved upon, so as to encourage undergraduates to effectively utilise EIRs within the learning space. The environmental variables could be push or pull factors that would determine the level of accessibility and utilisation of learning resources in the library.

It is expected that training is organised for undergraduatesand library staff to jointly create friendly library environment to facilitate the useof the Internet and internet-based resources. The training could be in two phases i.e. for the students and library staff. The library staff are in strategic position to facilitate effective use of EIRs among the undergraduates. Library is a repository of diverse learning resources that are domiciled on the internet. Therefore, the staff need to be properly trained on the capabilities of the information carriers to be used in accessing the resources. It is important that the personnel are equipped with the required skills to access and utilise internet-based resources that are available in the library. This allows them to provide necessary information to the undergraduates on the availability, accessibility and utilisation of EIRs for instructional activities. The staff with require competence would be in the best position to guide students on the availability of learning resources in the library system and how the learning materials could be judiciously utilised for learning and research. Therefore, it is important to train library staff on the rudiments of accessing EIRs that are available in the library. They should also have the capabilities to effectively utilise these learning resources and understand the principles that surround efficient utilisation of the materials. The staff need to have the abilities to identify the location of these materials on the Internet and to access the EIRs. All these are important so that library personnel would be in better position to properly guide students on the how to access EIRs in the library system. This would facilitate effective utilisation of learning resources within the context of library system.

In the same vein, the students are expected to be adequately trained on the rudiments of using EIRs for instructional activities. Like the library staff, there is need for undergraduates to be properly trained on the fundamentals that are involved in accessing and using learning resources on the internet. Students require adequate training on how to use ICT devices to accessing available learning resources in the library system. It is important that students are equipped with skills and competences on the instructional use of information carriers like computers and mobile devices to access EIRs in the library. Undergraduates are already conversant with the use of

digital tools for social engagement and exchange of ideas. However, the use of device for instructional purpose is quite different from social engagement. Thus, there is a need to expose students to the basic skills in the use of technological tools for classroom activities. Undergraduates require basic ICT skills to effectively use technology for instructional activities. It is also imperative to train students on how to identify and select relevant information from the EIRs available on the Internet. The onus lies on the stakeholders in the library system to ensure that undergraduates are exposed to basic skills that would assist them access myriads of information on the internet. This implies that adequate ICT training is central to the effective accessibility and utilisation of EIRs in the school system. This promotes effective utilisation of the available EIRs to support classroom instruction.

All these environmental factors play prominent roles in the usage of the library and its resources by the undergraduates. The terrain of the libraries and other physical infrastructures could influence the level of engagement of undergraduates with the instructional content. These environmental factors could determine extent of attention students would give to the content and this goes a long way in impacting the level of learning outcomes in terms of performance and attitude to the course. When enabling environment is created for users to interact with learning materials, it would promote deep learning and active engagement with course content.

Undergraduates in this kind of environment would find it easy to understand the subject matter and apply same to solving personal and societal challenges. Apparently, environmental factors that promote active learning and engagement with instructional content would prepare undergraduates to become active participants in solving problems within the school setting, community and the world at large. On the other hand, when the arrangement of available facilities is difficult for users to navigate, effective utilisation of resources becomes herculean. In this kind of setting, it is difficult for undergraduates to seamlessly navigate the terrain and access available resources. This would reduce the level of utilisation of EIRs by undergraduates and other library users. This further gives impetus to the strategic roles of environmental factors in the effective utilisation of EIRs by undergraduates. This is why experts are consistently advocating for the need to ensure adequate provision for enabling environment, to encourage effective utilisation of EIRs among undergraduates for academic purposes. It is believed that this effort would go a long

way in reducing to the barest minimum, the challenges confronted by the students in accessing and utilising available EIRs for learning and research

Sote and Aramide (2010) affirm that university administrators are expected to provide an enabling environment and essential facilities for students, in order to provide for their information needs and to ensure maximum utilisation of resources available in libraries. Therefore, good environmental factors such as cross ventilation, noiseless library halls, comfortable furniture and bright illumination of libraries are crucial to effective utilisation of electronic resources, which could enhance learning and research amongst undergraduates. It is pertinent to stress that university libraries support the teaching, learning and other curricular activities of their institutions. Therefore, the critical roles of libraries would become meaningful, when universities administrators could create enabling structure for effective and utilisation of various resources to support students' learning at different levels of education.

Finally, scholars had advocated for the need to ensure that library put up friendly disposition towards undergraduates this would create a much needed enabling environment that would stimulate accessibility and utilisation of resources for academic activities. In order to achieve this feat, there is a need to give due consideration to the attitude of the library staff, who are the personnel that would interface between the library management and the users, especially undergraduates. The attitude of library staff had been considered as a strategic factor that could determine the level of friendliness in the system. Individual's attitude goes a long way in determining the disposition to a particular event or programme and this could have ripple effect on the success or otherwise of the programme. Within the instructional system, the attitude and disposition of the key players like teachers and students could influence the outcome of the exercise. By implication, positive attitude from the library staff could create favourable atmosphere within the library system, which could influence many other activities along the continuum of information system. A positive-minded library staff would always be ready to offer necessary service to the undergraduates on the best ways to benefit maximally from the learning resources in the system. Students would be provided with relevant information about the available resources and the appropriate channels to access the materials. This would promote active interaction between undergraduates and library resources. When students are given opportunity to interact with the EIRs, they would be able to make effective use of the materials to enhance teaching-learning process.

On the other hand, a staff with negative attitude poses serious challenge to accessibility and utilisation of EIRs in the library system. A negative-minded staff would find it difficult to provide relevant information to the undergraduates on the availability, accessibility and utilisation of these learning resources to support instructional process. This creates unfriendly library environment that could discourage undergraduates from patronizing library services and would negatively influence utilisation of EIRs within the learning space. Students are expected to be provided with required information on the amount of learning resources that are available to enhance classroom activities. Furthermore, these students also require adequate information on the available channels that could be used to access learning resources. All these would promote effective utilisation of EIRs by the undergraduates for learning and research activities. However, it takes library staff with positive disposition to provide these important services to the students. Thus, it becomes important to ensure that library personnel are adequately trained on the appropriate ways to provide relevant information to the students by creating enabling and friendly library environment for active interaction with the library resources.

2.8 Accessibility to electronic resources and ICT skills of undergraduates

In the words of Adeoye and Popoola, (2011), accessibility is the ability to derive benefits from a facility with little or no stress, arising from location, price or cost at any point. Undergraduates will embrace the use of EIRs when they discover that such products are available and accessible at any period of time. Also, other users of EIRs including media centres, libraries and the general public require adequate access to these resources to justify huge government investment on the project. Thanuskodi (2013) expresses that access to EIRs has become a subject of important consideration for librarians and other critical stakeholders in education. Library users' knowledge and familiarity with EIRs are on the increase. These have made them make use of electronic resources often. As such, unrestricted accessibility to various types of EIRs must be ensured for undergraduates to effectively use the resources.

Studies have established that EIRs are gradually becoming major resources in several university libraries and this had revolutionised the way information is being handled and managed within the learning space. EIRs should therefore be accessible when the resources are available. In a study by Quadri, Adetimirin, and Idowu (2014), it was reported that the quantity of EIRs provided for users of libraries in universities and the degree to which they are being utilised define the level of information services

delivery of university libraries. Despite numerous advantages and positive effects the use of e-resources could have on undergraduates in universities, many undergraduates are yet to harness the opportunities due to inadequate access and lack of ICT skills required to navigate the resources. Accessibility to e-resources is crucial to the effective use of technology to facilitate instructional process, especially at the higher level of education. The undergraduates are expected to have 24 hour access to the resources, savings in cataloguing, provide multiple simultaneous accesses as well as prevent damage

The growth of EIRs have afforded undergraduates the opportunity to realise the benefits of computer and the Internet as means of connecting with people and colleagues worldwide via research and publications. These resources had provided timely and dependable access to information resources. In addition, these learning resources have made it possible to operationalise the Ranganathan's five laws of library science. The laws stated that information resources in libraries are for use of the people in the organisation, every individual is able to meet his or her information resource need, every information resource has its user, library personnel must save the time of the user and, library a growing organism. The advancement in library services through the capabilities of technological innovations had resulted in the development of EIRs and these resources were expected to simplify access to relevant learning resources in a more direct, convenient and timely manner for different categories of users. This indicates that technology had given impetus to the capabilities of EIRs and accessibility to relevant learning resources by the undergraduates within the learning space.

The strategic role of ICT in education system can be noticeable if learners are able to access relevant materials for study and research at different levels. The capabilities of ICT and internet-based resources had open up the space for undergraduates to access learning materials that could help in supporting their learning and research activities at all times. The rate of accessibility had been substantially widened with the systematic adoption of technology-related resources into the instructional process at different levels of education. Technology had significantly improved the provision for educational resources for instructional activities. The internet-based resources had also improved the rate of access to educational materials for learners in the school setting.

In the last twenty years, a remarkable improvement has been recorded in

collection development activities and practices in university libraries. Consequently, undergraduates now consider convenient, timely and fast response as they move from using print and physical resources to electronic in various university campuses; due to the immense benefits of EIRs to teaching, learning and research. The focus of education system has shifted from print materials to the provision of internet-based resources that are restricted by the challenges of time and distance within the instructional system. Students in the 21st century schooling system prefer to access relevant information through the use of technology, especially by leveraging the capabilities of internet-based resources for learning activities. This has necessitated the need for the provision of relevant EIRs by media centres, documentation centres and libraries, with a view to engaging undergraduates in instructional content. Libraries in the universities across the world are saddled with the responsibilities of ensuring that undergraduates are provided with relevant information and learning resources that would enhance instructional activities and encourage deep learning. This makes EIRs to be strategic in delivering functional and relevant instructional content to the undergraduates at the higher level of education. The broad and specific objectives of using EIRs in higher level of education can easily be realised, when undergraduates are given unrestricted access to relevant learning resources to support learning and research. The implication is that accessibility determines the effectiveness of EIRs in the education system.

Emwanta and Nwalo (2013) corroborated this by submitting that adequate and efficient library resources should be made available and accessible to all students and lecturers in the universities to enhance intellectual, cultural, and technical development. All major stakeholders in education system require the service of EIRs to produce to discharge their instructional responsibilities efficiently and effectively. The authors also stressed that EIRs would offer learners such as undergraduates access to relevant and current information from different subject areas or fields of study. The preponderance of information provided by EIRs would give undergraduates from different areas of specialization to acquire relevant knowledge and competence to function effectively in the modern society. These students, therefore, require adequate access to relevant information as provided by EIRs, so as to improve deep learning and students' critical thinking skills.

It is pertinent to mention that the growth of EIRs had provided an opportunity to have diverse means of organising information resources, collections, and services

available in libraries across the world. The EIRs have demonstrated positive impacts on the undergraduates and improved the intellectual activities necessary for studying and research. EIRs allow undergraduates to directly access and use EIRs for the improvement of their skills and knowledge that will permit them to live productive lives in today's information society. Thus, issues relating to accessibility should be given utmost consideration by education stakeholders, with a view to ensuring that undergraduates enjoy maximum benefits provided by EIRs within the learning setting. The instructional benefits derivable from effective utilisation of EIRs can only be manifested, when undergraduates are given adequate access to these learning resources at different levels of their educational pursuits.

The specific characteristics of the students at the higher level of education require that they are provided with relevant information to enable them meet the ever-increasing challenges of the 21st century society. The rate of development in this digital age necessitates the need for undergraduates to be equipped with adequate skills and knowledge to confront the challenges posed by the digital society. The inability of the lecture method of instruction widely adopted in universities to provide undergraduates with adequate information and learning resources implies that students would have to search for additional sources of information to solve personal and societal problems (Akufo and Budu, 2019). Undergraduates are therefore requiredto search for more information than what the conventional mode of teaching could offer and this makes it imperative to seek for assistance from other sources of information to get current and up-to-date learning materials that could be used to complement classroom instruction. This makes life easier for undergraduates as they would be able to get different perspectives to a particular concept and also collaborate with other scholars across the globe to solve regional or world problems.

Thus, it is expected that undergraduates would require access to huge volume of relevant information, as provided by the school management through libraries. Within the library system, different channels are provided for students to access information and available learning resources. In the higher education levels, learning materials are made available for undergraduates to support the classroom activities and solve societal problems. The print materials are usually provided to allow students get additional information to boost their reading and mental dexterity. It is expected that this would improve their learning and research abilities to solve different problems within the instructional space. These print materials had been used

over the years to engage undergraduates in instructional activities within and outside classroom setting.

However, the instructional constraints posed by the print materials make it necessary for a veritable tool that would allow students and other library users get unrestricted access to learning resources at all times. EIRs had been touted as strategic information tools that afford students the opportunity to access and utilise vast amount of learning materials for instructional purposes. EIRs are veritable internet resources to engage learners in instructional content. Students are able to easily access information using EIRs unlike the traditional library setting that is restricted by time and space. In the traditional library setting, students are expected to be physically present in the library before using library resources. This makes information system to become cumbersome and not appropriate to the needs and aspirations of the 21st century learners. The capabilities of EIRs had practically removed these hindrances in the traditional system of getting information in the library. With the affordances provided by internet tools, students can now use search engines to get relevant and appropriate information from their homes and workplaces. This caters for different categories of students within the school system. It is important to note that different categories of students enrol in the university system, including working-class people, politicians and other people in the community.

Considering the strategic importance of these resources to students learning and research activities, it had become paramount for education stakeholders to ensure that undergraduates are able to access EIRs to support classroom activities at any time. Accessibility remains a critical factor in the affective utilisation of EIRs for learning and research activities. The importance of accessibility to electronic resources among the undergraduates cannot be overemphasised in the Nigerian universities. The electronic resources are mostly becoming important and uniquely popular in the Nigerian universities. All the major stakeholders in the higher education require the services of EIRs to enhance teaching, learning and research (Ahmed and Anjili, 2015). The undergraduates require EIRs to complement classroom instruction and involve deep learning to solve personal and societal problems. The increasing importance of EIRs had necessitated the need for undergraduates to make judicious use of these materials to access up-to-date information from different regions of the world.Higher education students across different countries of the world require up-to-date information on critical concepts in

their areas of specialization. It has become seemingly impossible for lecturers to equip learners with all the required knowledge and skills that would be needed to function effective in the 21st century society. Thus, undergraduates are expected to leverage the capabilities provided by EIRs to support classroom instruction. This implies that EIRs hold the key to recent and up-to-date information that undergraduates would require to solve personal and societal problems. The availability of EIRs can only be meaningful within the instructional setting if undergraduates are able to make judicious use of the materials to enhance learning and research.

Accessibility to electronic information resources is very important to undergraduates of nowadays. The reason is not farfetched as students could access online materials from their home, hostels, lecture rooms and other designated areas. This is irrespective of whether or not the physical library is open. It is not out of place to state that availability of electronic information resources needs to be complemented with unrestricted accessibility in electronic format with little or no stress to the undergraduates and other library users. Availability of electronic information resources in the library and other designated centres is not just enough; undergraduates must be informed of their existence to be able to use them maximally. These students also need to possess requisite skills that will enable them to exploit the resources.

In essence, accessibility remains a critical factor that could determine effective utilisation of learning resources in libraries and media centres. Issues relating to accessibility to EIRs had been widely discussed by scholars across the world, with specific calls on educational stakeholders to ensure that undergraduates are allowed to access relevant learning resources in the system to enhance teaching-learning process. Undergraduates require adequate information on how to access relevant learning materials for instructional activities. Personnel in the libraries and media centers have the responsibilities to ensure that undergraduates are provided with the right type of information on the availability of learning resources within the system. Students also need to understand the available channels of accessing these learning materials, with a view to making judicious use of EIRs to promote deep learning and improved learning outcomes.

Aina (2014) concludes that accessibility to EIRshas been a major factor towards the use of the resources and a key determinant in the effective use of EIRs to support and enhance research and education. The values of EIRs in education could

easily be manifested by giving undergraduates adequate access to these learning resources within the instructional space, such that the students would be able to understand the capabilities provided by EIRs and thereafter leverage these abilities to facilitate learning and research activities. It is important to note that EIRs hold the key to recent and up-to-date information that students require to function effectively within their communities and become productive global citizens. Thus, undergraduates need to have access to these learning resources to be equipped with relevant skills and knowledge at all times. This would promote learners interest in the instructional content and improve their learning outcomes in different areas of specialisation. Ani, Ngulube and Onyancha (2015) emphasise the need for the development of a framework which focuses on developing EIRs inuniversity libraries and promote locally discovered research information and convert them for national and international access and use.

Accessibility of EIRs is considered a major factor as libraries of the 21st Century must provide various access points for numerous users to access collections without hindrance of any kind. Manjack,Dangani and Fari (2018) stressed that accessibility of information resources is a key factor in their usage because users prefer to use information sources that are easy to use `and easily accessible. Thus, accessibility remains a critical factor that could influence the use of technological resources in general and EIRs in particular, especially at the higher level of education. The use of EIRs among undergraduates is influenced by the extent to and the degree of accessibility to such resources. This is because particular users would prefer resources that are easily accessible to facilitate learning. The ease of location would determine whether an undergraduate would use EIRs for academic and research activities or not, and it is expected that easy access to EIRs would increase the tendency to use such resources (Nyabame and Nzuki, 2014). Thus, the functioning of libraries and information seeking habit of undergraduates could depend largely on the extent of accessibility of these importance resources within the learning space. This makes accessibility and utilisation of EIRs occupy strategic place in research in universities worldwide.

Shariful (2012) defines EIRs as the information stored in a medium which requires an electronic device to read its content, which is in different electronic media such as tapes, floppies, radio, etc., which can be retrieved with the help of other electronic devices like computers, etc. The use of these resources in a library mostly

depends on the level of accessibility and as such, there is a positive relationship between the level of accessibility and the use of EIRs in the library system. The library system that allows students to access learning resources would promote effective utilisation of EIRs to enhance instructional activities. Inadequate access to EIRs could defeat the purpose of acquiring these resources in the education system. Scholars are, therefore, consistently advocating for the need to ensure that adequate access to EIRs to justify the huge investment on these learning resources by the school management.

In a study carried out on electronic information resources by Ankrah and Atuse (2018), it was emphasised that EIRs are made up of range of products that are likely to exist in different formats such as e-text, e-newspapers, e-music, e-theses, e-journals CD-ROMs and resources available on the internet such as online database, webpages, and host of others. These resources are expected to be accessible by the students to support learning and research. Essentially, library resources are made up of print and electronic resources. The information centres, documentation centres, ICT centres and libraries have invested both human infrastructure and resources to meet the information needs of the undergraduates in Nigerian universities; however, it is quite another thing to make them accessible by undergraduates. In a study by Chimah and Nwokocha (2013) inaccessibility of electronic resources has been identified as the bane of effective utilisation of EIRs and research capabilities among undergraduates in Nigerian universities. The undergraduates are dissatisfied over the inaccessibility to e-resources of the library and host of other places.

Accessibility to EIRs would probably enhance usability by the undergraduates. Ani,Ngulube and Onyancha (2015) emphasise that provision of EIRs should be complemented by easy accessibility by the users particularly the undergraduates. They also stressed the benefits of EIRs in improving and encouraging research and learning such as allowing undergraduates to save time and space and providedinstantaneousrelaxedand better access. These instructional benefits of EIRs could be easily realised if undergraduates have access to the resources for learning and research activities.Tofi and Fanafa (2019) expressed that libraries should endeavour to develop a mechanism for the undergraduates to have unhindered access to EIRs which could be done through library portals, gateways to link adequate resources and provide ICT skills through training and retraining of the undergraduates to equip them with relevant and adequate skills to access and use EIRs to their

advantages.

As renewed interest is made in the provision of accessibility to EIRs and this is becoming popular in libraries, it is necessary to have a better understanding of the ICT skills of the undergraduates to navigate the use of EIRs. Thanuskodi (2011) observed that undergraduates should acquire the necessary skills to access and use the myriad sources of information to aid their academic pursuits. However, the information provided should guide and educate the student community for self-sufficiency and independent learning. Also, it is very important to note that Nigerian university libraries are at various stages of deployment and usage of electronic situation and so the more ICT skills undergraduates have, the more effective they would be in accessing EIRs to meet their information needs.

Lawal and Lawal (2015) maintain that previous researchers on the accessibility of electronic databases by undergraduate students of Umaru Musa Yar'adua University, Nigeria have established a stumpy degree of ease of access of databases in academic libraries. They examined the issuestouching on theease of access of databases among undergraduates. The study adopted a sample of two hundred undergraduate students. The study reported that consciousness on the ease of access of databases among undergraduates was inadequate and this influenced the ease of access of electronic databases. As a result, the authors recommended the need to raise the level of awareness on databases subscribed to by university libraries and also increase the Internet facilities in faculty libraries in order to ease the contact to databases. This, therefore, implies that even if the students are skilful in ICT but are less aware of the available electronic resources in the library, it will affect their access to and use of EIRs.

In the process of making students aware of the availability of EIRs and the resources could be accessed, it is imperative to ensure that library staff are well trained in the area of providing necessary information to the students. The personnel are expected to display positive disposition to make library environment to be friendly and conducive. Library staff with positive attitude would be able to provide adequate information to the students on the learning resources available and how these materials could be easily accessed by all categories of learners in the instructional process. Undergraduates are required to be well guided by the personnel on the availability of diverse learning resources in the library collections and the channels to easily access these EIRs. Library personnel with negative and unfriendly attitude

would discourage students from visiting the library and this would discourage effective use of EIRs for instructional tasks. Thus, it is imperative for library management to ensure that library personnel are well trained on the best approach in relating with undergraduates within the learning space. This would create friendly environment for undergraduates to access the available learning materials, especially those that are domiciled on the internet like EIRs. This will create positive relationship between undergraduates and the library personnel. On the long run, undergraduates would be stimulated to request for relevant information that would help in accessing available EIRs on the internet. It is therefore important to give utmost priority to the relationship between students and library staff and ensure that a peaceful environment is created for students to easily access EIRs and utilise such for instructional purposes.

In different countries of the world, emphasis had been placed on the need to provide learning resources to enhance academic activities and EIRs have been playing vital role in the academic pursuits of undergraduates in Nigerian universities. These are made possible through the power of the Internet that makes e-resources to be accessible to the undergraduates in the various locations such as cyber cafe, home, hostels, media centres just to mention a few (Manoj, Kumar, Gauri, and Bimal,2011). The preponderance of these internet-based resources could become meaningful to education system if students could have unrestricted access to the materials to facilitate teaching-learning process. Sivasubramaniyan and Batcha (2012) express that accessibility is the key to electronic resources that could be found in the ICT centres, documentation and media centres as well as libraries. The principle guiding provision of EIRs to support students' learning requires that these interventions should really be accessible to undergraduates anytime, anywhere. The provision of appropriate EIRs in the learning space only becomes meaningful when the participants in the programme have unrestricted access to the interventions at the points of need. This would help learners in making appropriate decisions on how to effectively utilise these resources to enhance learning at different stages of the programme. On the long run, high degree of accessibility would engender sustainability in the system, as students would be able to get the best out of the learning resources provided for instructional purposes.

Accessibility to EIRs could be influenced by individual and technological factors as identified by scholars in information system. In the opinion of Ukpebor (2012), issues related to accessibility to EIRs could sometimes be influenced by the

personal characteristics of the users, especially the undergraduates and information carriers. The personal characteristics of the undergraduates could include their attitude, perception, socio-economic background, physical or other psychological indices that could determine the extent at which users would effectively put available resources into optimum use. These personal factors could positively or negatively influence accessibility to EIRs among undergraduates. For instance, students from poor homes might find it difficult to afford the financial implication of access some internet-based resources to support classroom instructions.

On the other hand, students from wealthy parents could easily pay to access any form of resources that could be useful for educational purpose. In the same vein, physical structure of the users could go a long way in ensuring easy access to some specific educational facilities within the learning institution. Students with disabilities could find it difficult to gain access to some facilities in the libraries and documentation centres due to their specific or peculiar characteristics. These personal characteristics could hinder the level of accessibility to EIRs among undergraduates. The characteristics of the channels through which information flows could also hinder effective access by the users. Some channels or carriers require specific skills and competences to navigate the content and this could deny undergraduates without such skills within the system.

Scholars had also emphasised that the peculiarities of the contents of the EIRs and the overall information environment might also inhibit accessibility among the students. Some content are very easy to navigate and this could encourage students to put the resources into optimum use. This could also improve the level of access among the students.Generally, undergraduates' characteristics like ICT competence, information mastery, attitude to technology, language proficiencyand perceived relevance could also go a long way in determining the rate of access to EIRs within the education system. The specific features of some carriers like CD, DVD and flash drives could also be critical factors that could hinder access to information for academic purposes (Ani, Ngulube and Onyancha (2015). All these personal and carriers characteristics could affect the rate of access to information, especially educational resources among the undergraduates. Thus, educational stakeholders are usually encouraged to put these specific and general factors into consideration in the planning and implementation of information programme, especially within the libraries and media centers in the higher institutions. The success and otherwise of

any information programme could depend largely on these critical features of the users and information carriers.

Scholars have advocated for the need to ensure that friendly channels are selected to convey relevant information to the students. Information channels that are difficult to navigate would pose serious challenges to the accessibility of EIRs by the undergraduates. On the other hand, appropriate channels or carriers of information would encourage undergraduates to easily access the content on the internet and utilise the EIRs for instructional activities. Thus, critical stakeholders are usually encouraged to put necessary mechanisms in place to ensure that students are able to access EIRs for learning activities and research endeavours. The channels of information are expected to be user-friendly, with the abilities to convey required information to the users. This factor needs to be considered by the stakeholders in the process of acquiring EIRs for instructional activities. Appropriate channels should be selected form the on-set, to ensure that undergraduates are able to easily access the content and utilise such for academic purposes.

In the same vein, accessibility to EIRs can be hindered by the budget for purchasing information carriers like computers and smart phones as well as subscriptions to access a resource (Adeleke and Nwalo (2017). Affordable subscription rate would allow many average users to access information while high subscription deny the less privileged in the system from access the materials. In essence, affordable subscriptions would motivate average undergraduates especially in developing countries of the world to gain access to relevant and up-to-date information from the EIRs for academic activities. The prices of vital information channels and devices like computers and mobile phones could be a strong factor determining the level of accessibility to learning resources by the undergraduates in the education system. Evidences abound in literature that high cost of digital devices like smartphones and computers could deny average undergraduates from gaining access to relevant information from the EIRs. When the cost of purchasing these devices are not within the reach of the undergraduates, it becomes difficult to have access to relevant information that could help in supporting classroom activities. It is therefore important that stakeholders in education ensure that the cost of these devices and subscriptions to information are kept within the reach of average undergraduates. This will ensure adequate access to relevant and up-to-date information for learning and research activities.

While some scholars had argued that the cost of purchasing information carriers like computers and mobile devices might not be a significant challenge in developed countries due to the level of development and availability of relevant facilities to support teaching-learning process, the budget could be a factor in developing countries of the world, especially in Africa and Asia. In the developed regions of the world, information carriers like computers and other mobile devices are integral parts of the education system. These devices are usually made available at all levels of education to support instructional activities. Thus, undergraduates in these countries are not basically confronted with the issues of insufficient purchasing power to acquire these devices.

However, this is not obtainable in developing and under-developed countries of the world, especially across Africa and Asia. Many countries in sub-Sahara Africa are practically faced with inadequate learning resources to support classroom instruction. Many undergraduates in these countries are confronted with inadequate resources like computers, smart phones and other mobile devices to access internet-based resources. It is noteworthy that EIRs are domiciled on the internet and require specific information carriers like computers and mobile phones to access the content (Urhiewhu, 2014). These devices are the carriers of information that should be provided for undergraduates to ensure easy accessibility of EIRs in the libraries.

However, due to the low level of development and low per capita income in many of these developing countries, it is becoming increasingly difficult for students to purchase necessary devices that could be used to access learning resources on the internet, especially electronic resources. Thus, this remains a critical challenge to the accessibility and utilisation of EIRs among the undergraduates in these countries of the world.

Scholars across the world are emphasising the importance of positive relationship within the library system as such would help in reducing friction between undergraduates and information service providers. The attitude of these people could make or mar the relationship within the system, which could influenceaccessibility and utilisation of learning resources for instructional activities. Positive attitude on the part of the library staff promotes friendly environment in the library system. This could translate into improved accessibility to available EIRs and on the long run enhance utilisation of these learning resources for learning and academic activities.

2.9 Environmental factors and ICT skills of undergraduates

Environmental factors play critical roles in higher educational institutions particularly in tertiary institutions such as university set up. The importance of environmental factors cannot be under-estimated in every organisational structure. Every organisation must operate within conducive environment. In that case, environmental factors must be taken into cognizance since no organization exist in a vacuum but within a certain environment which usually creates some challenges and opportunities that affect the existence, operation and survival of the organization (Folorunsho and Njoku, 2016).Education system is also prone to the influence of these factors and should be given due consideration by the critical players in the field of education. The existing environmental condition could have significant impact on the access and utilisation of EIRs in the libraries and media centres across universities. The essence of environmental factors on the use of e-resources among the undergraduate towards their learning and studying cannot be underestimated (Adeoye and Elegunde,2012). This is because successful use of e-resources could be facilitated or influenced by structured and conducive environmental conditions being provided by the institution concerned. Peaceful environment helps to create a friendly atmosphere where the undergraduates would interact with large volume of e-resources as well as interacting with other students in different parts of the world.

Hasirci, (2011) believes that proprietor of higher educational institution must take cognizance of abundant natural light as one of the key ingredients of environmental factors that could influenceundergraduates to make use of e-resources to their advantage in studying and learning activities while in schools. The author further states that sunlight, free and abundant natural resources have powerful effect on creating a comfortable and usable learning space that influences learning and research in positive ways. The renewable energy from the sun could be properly utilised in the planning and setting-up of library in the university. It is advisable that library management makes use of this natural resource to ensure that the library environment remains illuminated, especially during the day. The library needs to be structured in such a way that allows for sunlight to illuminate every area in the building. This creates conducive environment for undergraduates to read, learn and carry out research activities.

Also, for undergraduates to effectively use the e-resources provided, there should be adequate ventilation, conductive physical facilities like furniture and

lighting that could attract the undergraduates to effectively use e-resources to enhance teaching-learning process. It is highly essential that good ventilation be provided to promote proper utilisation of EIRs by the undergraduate's to execute class assignment, and host of other learning activities. It had been argued that a strong nexus exists between good ventilation and undergraduate's utilisation of EIRs in the instructional system. Scholars had reported that a well-ventilated structure creates friendly environment for teaching, learning and research activities. Apparently, good ventilation would encourage undergraduates to the library system. This would improve accessibility and effectiveutilisation of EIRs for instructional activities. On the other hand, a poorly ventilated library would create unfriendly learning and research environment. This would discourage students from using library resources for learning and research activities.

Therefore, a conducive learning environment could be likened to a situationin which all the strategic factors like lighting, furniture, noise free reading areas and good ventilation are adequately provided for learningand research purposes at all times. It is important that enabling environment like good lighting system, moderate temperature,acceptable sound and noise level should be properly considered from the inception of construction of the library building (Oyedum, 2016). Folorunso and Njoku(2016) submit that the planning and design of educational facilities for schools, especially library facilities,could influence the educational outcomes of the undergraduates.Students rely largely on these learning resources to complement classroom instruction and provision of enabling atmosphere for them to interact with the materials would a go long way in enhancing learning and research among the undergraduates. This has to be considered even before construction of a library, especially at the planning stage. The library has to be located in serene environment with minimum level of noise and other external disturbances. For instance, it is not advisable to locate a public library close to a market or event centre to minimise the level of noise that could be hindering effective learning and research activities. The location of the library should be considered at the planning and designing stage before implementation. A conducive geographical region is a pre-requisite to effective learning and research activities within the learning space.

Oyedum, (2016) posits that adequate ventilation is fundamentally important for effective reading, learning and productive research activities to take place in any university library. Oyedum and Nwalo (2011) assert that libraries in the selected

Nigerian universities are properly illuminated as attested to by 61.6% of the respondents. The implication is that a properly illuminated library will attract many users and could sustain the interest of students in using EIRs for academic tasks. This particular environmental factor is strategic to ensure flexibility and accessibility to learning resources within the learning space. This would promote effective utilisation of EIRs among the undergraduates and would assist them in acquiring relevant skills and knowledge to be members of the society. Furthermore, university authorities are obliged to see to the provision of an enabling environment and facilities for the smooth running of the activities of both staff and students towards the achievement of the objectives and goals of institutions. Provision of tables, chair, air conditioning and the host of other facilities is compulsory to ensure optimum utilisation of learning resources in the library.

Apparently, environmental factors that promote active learning and engagement with instructional content would prepare undergraduates to become active participants in solving problems within the school setting, community and the world at large. On the other hand, when the arrangement of available facilities is difficult for users to navigate, effective utilisation of resources becomes herculean. In this kind of setting, it is difficult for undergraduates to seamlessly navigate the terrain and access available resources. This would reduce the level of utilisation of EIRs by undergraduates and other library users. This further gives impetus to the strategic roles of environmental factors in the effective utilisation of EIRs by undergraduates. This is why experts are consistently advocating for the need to ensure adequate provision for enabling environment, to encourage effective utilisation of EIRs among undergraduates for academic purposes. It is believed that this effort would go a long way in reducing to the barest minimum, the challenges confronted by the students in accessing and utilising available EIRs for learning and research

In the opinion of Sote and Aramide (2010), university administrators are expected to provide an enabling environment and essential facilities for students, in order to provide for their information needs and to ensure maximum utilisation of resources available in libraries. Therefore, good environmental factors such as cross ventilation, noiseless library halls, comfortable furniture and bright illumination of libraries are crucial to effective utilisation of electronic resources, which could enhance learning and research amongst undergraduates. It is pertinent to stress that university libraries support the teaching, learning and other curricular activities of

their institutions. Therefore, the critical roles of libraries would become meaningful, when universities administrators could create enabling environment for effective and utilisation of various resources to support students' learning at different levels of education.

2.10 Environmental factors and accessibility of electronic resources by undergraduates

Environmental facilities are generally considered very important because undergraduates' satisfaction means that the infrastructures and services provided by the library are generally considered to be adequate to the needs and aspirations of different categories of students within the instructional system. These facilities determine, to a large extent, the pattern of accessibility and utilisation of learning resources in the library system. In a survey carried out in the University of Peshawar, Pakistan, Khan, Bhatti, Khan and Ismaila (2014) reported that significant number of students were satisfied with library physical facilities that were provided by the library management which include lighting system, ventilation facilities, tables, seating arrangement, space for reading and computer facilities. However, the respondents were dissatisfied with research corner facilities, the standard of air-conditioning system, and audio-visual resources provided in the library. These findings corroborate the report of Arif and Mahmood, (2010) which indicated that a significant number of students were not satisfied with the library facilities like air conditioning system and lightning system.It is possible for the students to access and utilise library resources without stepping into the library building, if enabling environment is created to ensure that students can use their digital devices to interact and exchange ideas with other students across the world (Sivathaasan, 2013).

The ability to create enabling environment for undergraduates to access quality information could positively influence the patronage of the library services within learning institutions (Hoffaman, 2018).It had been observed that a library system with relevant and appropriate facilities would attract young minds for exploration and research activities. Undergraduates would be encouraged to patronise a library system that offers them adequate facilities in a serene atmosphere that encourages deep learning and critical thinking skills of the students. Students require a learning and research environment that is devoid of unnecessary noise and external disturbances, to ensure that maximum concentration is maintained throughout their

learning and research activities. It had been argued that learning and research activities required undivided attention and maximum concentration from the students. This cannot be achieved in a rowdy environment that is under external and internal disturbances. Thus, efforts should be geared at ensuring that library environment is located in a serene environment that is devoid of internal and external disturbances. This is meant to ensure that undergraduates are fully engaged in the instructional content and benefit maximally from the available learning materials in the library system. This would encourage a significant number of students to patronise the library and utilise learning resources provided to enhance learning and research activities.

Environmental factors have been identified as a source of strength and weakness as far as the provision of services is concerned. They may act as an impetus towards EIRs and other relevant information used by undergraduates in Nigerian university libraries. The implication is that effective provision of library services could largely be a function of the inherent environmental factors that could influence accessibility and utilisation of learning materials in the library system by the students. The success or otherwise of the library services could be attributable to the provision of enabling environment that would encourage patronage, accessibility and utilisation of available materials in the library system, especially at the higher level of education. A favourable environmental condition would attract many students to the facility and improve access and utilisation of the resources for instructional activities. On the other hand, library system located in unfriendly environment would discourage the users from accessing and utilising available resources for academic activities. The implication is that even with the availability of learning resources in the library, environmental factors could be stumbling blocks to effective utilisation of learning resources by the different categories of students in the school.

Khan and Bhatti (2012) surveyed the departmental libraries of the University ofPeshawar, Pakistan to determine the facilities status, services issues, challenges and prospects in the information system. The study reported that most of the departmental libraries are operating below standard. They lack proper library facilities such as – chairs, reading table, space and air-conditioning facilities. The implication is that most of the libraries in the developing countries of the world operate below the acceptable international best practices. This can be attributable to the low level of development which had resulted to poor standard of living among the people. Many developing countries in battling with decay in infrastructural facilities and limited resources to

satisfy human needs.

Accessibility to EIRs can be hindered by the budget for purchasing information carriers like computers and smartphones, as well as subscriptions to access a resource (Shariful, 2012).

Affordable subscription rate would allow many average users to access information while high subscription deny the less privileged in the system from access the materials. In essence, affordable subscriptions would motivate average undergraduates especially in developing countries of the world to gain access to relevant and up-to-date information from the EIRs for academic activities. The prices of vital information channels and devices like computers and mobile phones could be a strong factor determining the level of accessibility to learning resources by the undergraduates in the education system. Evidences abound in literature that high cost of digital devices like smartphones and computers could deny average undergraduates from gaining access to relevant information from the EIRs. When the cost of purchasing these devices are not within the reach of the undergraduates, it becomes difficult to have access to relevant information that could help in supporting classroom activities. It is therefore important that stakeholders in education ensure that the cost of these devices and subscriptions to information are kept within the reach of average undergraduates. This will ensure adequate access to relevant and up-to-date information for learning and research activities (Ugwu and Orsu 2017).

Budget for purchasing information carriers might not be a significant challenge in developed countries of the world due to the level of development and availability of relevant facilities to support teaching-learning process. In these regions of the world, information carriers like computers and other mobile devices are integral parts of the education system. These devices are usually made available at all levels of education to support instructional activities. Thus, undergraduates in these countries are not basically confronted with the issues of insufficient purchasing power to acquire these devices. However, this is not obtainable in developing and under-developed countries of the world, especially across Africa and Asia. Many countries in sub-Sahara Africa are practically faced with inadequate learning resources to support classroom instruction. Many undergraduates in these countries are confronted with inadequate resources like computers, smart phones and other mobile devices to access internet-based resources. It is noteworthy that EIRs are domiciled on the internet and require specific information carriers like computers and mobile phones to

access the content. These devices are the carriers of information that should be provided for undergraduates to ensure easy accessibility of EIRs in the libraries.

However, due to the low level of development and low per capita income in many of these developing countries, it is becoming increasingly difficult for students to purchase necessary devices that could be used to access learning resources on the internet, especially electronic resources. Thus, this remains a critical challenge to the accessibility and utilisation of EIRs among the undergraduates in these countries of the world.EIRs are worthless if they are not used. Availability of EIRs has changed what undergraduates usually read and used; they tend to use what is easily accessible (Sejane, 2017). Thus, governments at all levels need to put necessary mechanisms in place to ensure that appropriate channels are created for students to access learning resources available within the library system. This would go long way in improving learning and research among undergraduates in the universities worldwide, especially in developing countries of the world. This factor, therefore, needs to be properly considered in the process of acquisition of EIRs for use by the undergraduates. There is a strong need to provide enabling atmosphere for all categories of students in terms of cost-effectiveness and provision of adequate infrastructures to ensure that undergraduates are able to access and utilise these learning resources with limited restrictions.

When enabling environment is created for users to interact with learning materials, it would promote deep learning and active engagement with course content. Students operating in this kind of condition would find it easy to understand the subject matter and apply same to solving personal and societal challenges. Apparently, environmental factors that promote active learning and engagement with instructional content would prepare undergraduates to become active participants in solving problems within the school setting, community and the world at large. On the other hand, when the arrangement of available facilities is difficult for users to navigate, effective utilisation of resources becomes herculean. In this kind of setting, it is difficult for undergraduates to seamlessly navigate the terrain and access available resources. This would reduce the level of utilisation of EIRs by undergraduates and other library users. This further gives impetus to the strategic roles of environmental factors in the effective utilisation of EIRs by undergraduates. This is why experts are consistently advocating for the need to ensure adequate provision for enabling environment, to encourage effective utilisation of EIRs among

undergraduates for academic purposes. It is believed that this effort would go a long way in reducing to the barest minimum, the challenges confronted by the students in accessing and utilizing available EIRs for learning and research (Adeoye, and Elegunde, 2012)

Conducive environmental conditions such as cross ventilation, noiseless library halls, comfortable furniture and bright illumination of libraries are crucial to effective utilisation of electronic resources, which could enhance learning and research amongst undergraduates. It is pertinent to stress that university libraries support the teaching, learning and other curricular activities of their institutions. Therefore, the critical roles of libraries would become meaningful, when universities administrators could create enabling structure for effective and utilisation of various resources to support students' learning at different levels of education Ajayi and Aramide, 2012.

. Evidences abound in literature that effective utilisation of electronic resources could largely depend on the environmental condition of the libraries (Sote and Aramide, 2010; Adebimpe, 2012; Ajayi and Aramide, 2012 and Adeniji, 2014). Specifically, Ajayi and Aramide (2012) identified major environmental factors that may result in poor or refusal to explore and access EIRs by undergraduates for academic activities. These are; poor or inadequate access ICT facilities, poor internet access, insufficient computer work stations, and inadequate ICT skills. Other reasons for poor use of the resources are the high cost of internet connectivity and accessibility, lack of training and re-training opportunity in the use of EIRs, absence of skilled personnel to maintain ICT equipment and, poor and unavailability of infrastructure. These factors can limit the use of EIRs for academic purposes in the university libraries. These findings established the huge environmental constraints confronting undergraduates in their bid to use electronic information resources.

2.11 Constraints to electronic resources usage by undergraduates

Libraries are meant to make learning resources readily available to the users for academic and recreational purposes. The system provides academic community with the opportunity of accessing learning materials in print and electronic formats.The advancement in technological innovations had resulted into the introduction of EIRs to support teaching-learning process at all levels of education. The introduction of EIRs into the library system indicated a radical shift in the

provision of information services to the university community, especially the undergraduates. EIRs provide a refined pathway in accessing learning materials for academic and research activities. This had attracted many undergraduates into the library system as these students require information to execute instructional tasks. This is evident in the way users are increasingly taking advantage of the EIRs to access and use myriads of information for different purposes (Adebayo, Ahmed and Adeniran, 2018). Users do not really have to come to the library physically before they can make use of the resources. It is important to state that for EIRs to be used effectively, they must first be available, and users must be aware of their availability. Then, users must be able to access them and these users must possess skills in ICT for active use of the electronic information resources (Ugwu and Orsu, 2017).

Egberongbe (2011) identified strategic factors that could hinder accessibility and utilisation of EIRs in Nigerian universities to include lack of strategic planning, inadequate funding from strategic stakeholders and inadequate practical training to equip users with requisite skills and competences to effectively utilise ICT platforms and devices. It had been argued that many library staff and students are not properly trained on the functionality of EIRs and how to effectively utilise the materials to support classroom instruction. Library staff who are not well trained on appropriate skills would find it extremely difficult to operate in the 21st century library system. Tella, Orim, Ibrahim and Memudu (2018) reported that many academic staff and undergraduates use the ERs in the university library infrequently just as he added that students claimed that their lecturers never encouraged them to visit the library not to talk of accessing the ERs available therein. It has been observed that undergraduates, in most cases, are not given adequate information on the availability and accessibility of learning materials in the library. The lecturers and the library staff have the responsibility to properly inform students on the available learning materials in the library system and how students could access them for learning and research activities (Akuff and Budu, 2019). During classroom activities, the lecturers are expected to refer students to learning resources in the library, with a view to encouraging deep learning and active participation of students in the instructional process. The library personnel are expected to properly guide students on the available learning resources in the system. In the first instance, library staff need to provide adequate information to the undergraduates on the type of learning resources that could be found in the library system. Also, students need to be guided on the available channels that are

present in the system to access the ERs for academic activities. There is also a need for students to be properly guided on the best ways to effectively utilise learning resources for learning and research activities. Students need information and skills on how to use ERs to support classroom instruction.

Nwachukwu and Thadder (2015, described the situation in developing countries regarding the deployment of ICT-based resources including ERs into the education system through the university library as improving because governments in most developing countries have responded to the challenge by initiating national programmes to introduce ICT facilities and resources integration and application into education with the university library equipped with the needed resources to ensure the success of the programmes. Libraries, information centres and librarians play valuable roles in meeting undergraduates' information needs, facilitating and making access to information resources relevant to meeting their needs. The traditional functions of librarians are being transformed and made compatible with the demands of the electronic age which has ICT facilities as the driving force.

Sejane (2017,) highlights the Internet and OPAC as the commonly used EIRs by students. According to them, Emerald and EBSCO full-text databases contain titles that would be most relevant to the academic needs of students. Nevertheless, the use of these two products was only minimal. This is due to some organisational and personal constraints that limit the effective utilisation of library resources by different categories of learners in the school system. Undergraduates usually face some challenges in accessing and utilising available materials in the library due to these constraints. Prangya and Rabindra (2013) identified the following as challenges towards undergraduates in making use of the e-resources in media centres, libraries and documentation centres such as lack of training on the part of the undergraduates, poor infrastructure and very high cost of accessing theses virtual EIRs by the students. They have been a bottleneck towards the undergraduates using the e-resources.

Another problem identified as a challenge towards the use of electronic resources amongst the undergraduates and teeming users of the media, documentation centers as well as libraries was slow internet access. However, the slow speed amounted to waste of time required to retrieve relevant information to make a quick decision. The author further stressed lack constant electricity supply and access to e-resources (Velmurugan, 2013). Adeleke and Nwalo (2017), summed up the following as challenges towards undergraduates efficient and effectively utilised resources in the media centers, documentation libraries and ICT centers to include fluctuating internet

services, inadequate technological skills, inadequate training for the library personnel, epileptic power supply and low band width.

Apparently, these myriads of constraints could be stumbling blocks in accessing and utilizing learning resources in the library. In some cases, the stakeholders place emphasis on the acquisition of EIRs without due consideration to the factors that could hinder the use of the materials by the users. It is important to note that these constraints could discourage undergraduates from patronizing library and could reduce the level of use of learning resources in the system. This could defeat the purpose for which EIRs are acquired in the instructional setting. EIRs are made available to provide undergraduates and their teachers with relevant information to enhance teaching, learning and research activities. Thus, steps have to be taken to ensure that these factors are considered and well taken care of, in the planning and implementation of library information system. This would go a long way in ensuring that available EIRs in the library are adequately utilised for learning and research.

2.12 Theoretical framework

Several theories and models had been established to examine the acceptance and usage of information system and other related technologies by individuals in the society. Notable among these theories is the Unified Theory of Acceptance and Use of Technology (Venkatesh, Morris, and Davis and Davis, 2003). The theory is considered appropriate for this study as it focuses on the necessary factors that could hinder or promote effective utilisation of technology in the organisational system.

2.12.1 The Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh, Morris, and Davis (2003) are the proponents of the Unified Theory of Acceptance and Use of Technology (UTAUT). The theory was developed from basic technology acceptance and use models that had been in existence in the past. The constructs that made up this model are systematically amalgamated from eight previous models which include: the social cognitive theory, the technology acceptance model, the theory of reasoned action, the motivational model, the theory of planned behaviour, the innovation diffusion theory and the model of PC utilisation. Therefore, UTAUT gives a comprehensive approach to issues to technology acceptance and use among different categories of users in the information system. It is basically an elaborate synthesis of previous models of technology acceptance and use

and scholars had widely reported its efficacy in determining the acceptance and utilisation of technology among different categories of users in the information system.

UTAUT consists of four main constructs as identified by the proponents and these construct could be used to determine the level of acceptance and use technology and technological resources like EIRs in the library system. These four main variables are: performance expectancy, effort expectancy, social influence, and facilitating conditions. It had been established in the model that these main constructs could influence behavioural intention to use a particular technology or technological resources within the instructional system. These constructs have been related to the consumer technology acceptance and use context, to properly explain how the variables could influence behavioural intention to use a particular technology within the information system. According to Venkatesh et al. (2003), performance expectancy is the degree to which using a technology will provide consumers with the required benefits. Within the context of this model, effort expectancy had been considered as the ease associated with consumers' use of technology, which could influence the intention of the users to use the device or platform in subsequent activities.

Another strategic factor to be considered in the model is the social influence. It is believed that individual's decision to accept and use technology could be influenced by other external factors that are not within the control of the user. This factor, according the UTAUT model, is called social influence. Social influence is the extent to which consumers or users of technology perceived that other important individuals within the society like family, friends, colleagues or mentors, believed they should use a particular technology to execute tasks. This is an external factor outside the control of the user.The last construct in the model is the facilitating conditions. According to the proponents of the model, facilitating conditions is simply consumers' perceptions of the requisite resources and support available to perform a behaviour or utilise a technology (Brown and Venkatesh 2005; Venkatesh et al. 2003). The facilitating conditions are the enabling resources that are expected to be provided, with a view to ensuring that individual accepts and utilises available resources at a given time. These conditions could be likened to the environmental factors in the context of this study. In other words, these are the facilities, resources and enabling environment that could facilitate the adoption of technology by the

individuals within an organisation or in the society. The construct also encompasses the provision of necessary technical supports, with a view to encouraging and improving the level of acceptance and utilisation of resources or technological tools within an organisation. A graphic representation is provided in Fig 2.1

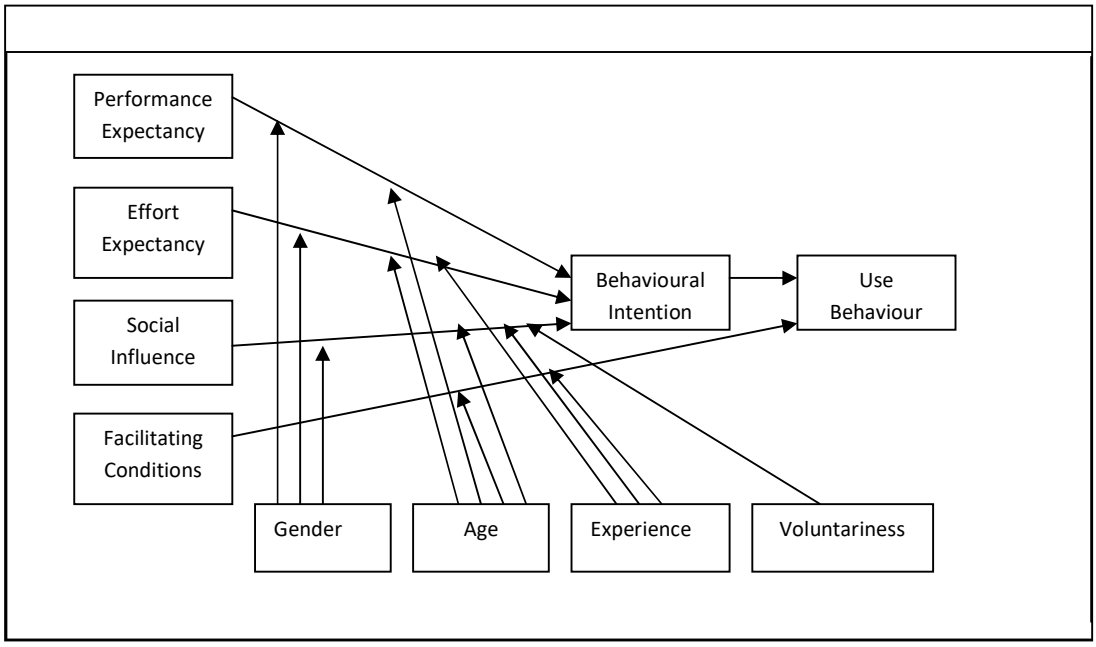

Figure 2.1: UTAUT Model by Venkatesh et al. (2003)

In the context of this model, the three constructs i.e. performance expectancy, effort expectancy and social influence are theorised to have significant influence on individual's behavioural intention to use a particular technology. In the same vein, facilitating conditions and behavioural intention influence technology use among the users in the information system. Also, age, gender, voluntariness of use and experience could serve as moderator variables in UTAUT relationships.

UTAUTis applicable to this study as its four constructs Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions are relevant to the variables of this study. Performance Expectancy Construct will be used to support ICT skills and EIRs. In the context of this study, performance expectancy requires an undergraduate to have ICT skills to use electronic resources effectively to enhance his or her academic and research activities. The effort expectancy requires that undergraduates should be given the opportunity to access and utilise EIRs without constraints. The students should be able to seamlessly use available EIRs to support classroom instruction. This is because the ease with which undergraduates use a computer, the Internet, search engines and so on, and the ease at which they navigate or display these skills will positively influence theiruse of EIRs (like e-journals, e-books, databases etc.) to improve their academic and research endeavours.

The Social Influence construct includes elements such as opinion or perception of others, subjective norms, social factors and image. These elements will influence undergraduates to use EIRs because if an undergraduate sees or perceives that fellow undergraduates have ICT skills or are using computers, the Internet or their mobile phones to access electronic resources to execute assignment or other activities. Undergraduate will also want to use the tool or possess the skills needed for the execution of such activities that are being encouraged by the society. This implies that the influence of library staff, lecturers, and colleagues could influence undergraduates to access and use EIRs for learning, research and collaboration with other students in different parts of the world. Many people within the instructional process can influence the decision of students to participate in any educational programme or use a particular technology. In the case of EIRs, the opinion of other people in the society could go a long way in shaping the choice that would be made by undergraduates as regards accessibility and utilisation in the instructional process. These individuals could influence positively or negatively, the decision to be made by undergraduates in using EIRs in the education system.

Facilitating Conditions are essentially organisational and technical supports which are provided by the institution. In the context of this study, environmental factors could be considered as the facilitating conditions that could encourage access and utilisation of EIRs in the library system. The environmental factors in this study are the supply of electricity, air conditioners, noise level control, provision of tables and chairs, provision of ICT resources and so on. If provided by the institution, it is believed that these factors will encourage undergraduates to use the EIRs provided by university libraries. Accessibility factors such as the location of electronic information resources, availability and purpose of use will influence the use of EIRs by undergraduates. For instance, if computer terminals, the Internet and other resources are available but not accessible, the undergraduate will not be able to use the electronic resources provided by the university library. Similarly, if the location is not conducive, undergraduates will not be able to maximise the benefits that are derivable from using EIRs for academic activities.

2.13 Conceptual model

For the purpose of this study, the UTAUT has been found relevant and practically applicable to determine the likely factors that could influence the level of utilisation of EIRs within the learning space. The UTAUT was adopted as it encompasses critical elements like facilitating conditions (FC) and other relevant variables which formed the componentsof the model. The facilitating conditions, according to UTUAT, refer to consumers' perceptions of the resources and support available to perform behaviour which in the context of this study include: accessibility, ICT skills and environmental factors. These factors can be referred to as conditions that could expedite active usage of EIRs by undergraduate students.

The model tagged 'Accessibility, skills in ICT, Environmental Factors and use of EIRs model (AISEF) advanced by the investigator for the study highpoints the relationsamongst the independent variables (Access to electronic information resources, ICT skills, and Environmental factors) and the dependent variable (use of EIRs) of the study. The components of ICT skills include computer management skills, file management, word processing skills, power point presentation skills and the Internet skills, among others. On the other hand, the items for accessibility revolve around the location of access to EIRs and the frequency of accessing EIRs while the construct for environmental factors focused on infrastructure, technical and

accommodation facilities among others.

The components of the use of electronic resources (EIRs) include types of EIRs beings used, the purpose of use and frequency of use. The underlying principle of the model is that the relationship between accessibility, ICT skills and environmental factors may strongly relate with use of EIRs among undergraduates in universities in North-Central part of Nigeria. The conceptual framework is illustrated in graphic form in Fig. 2.

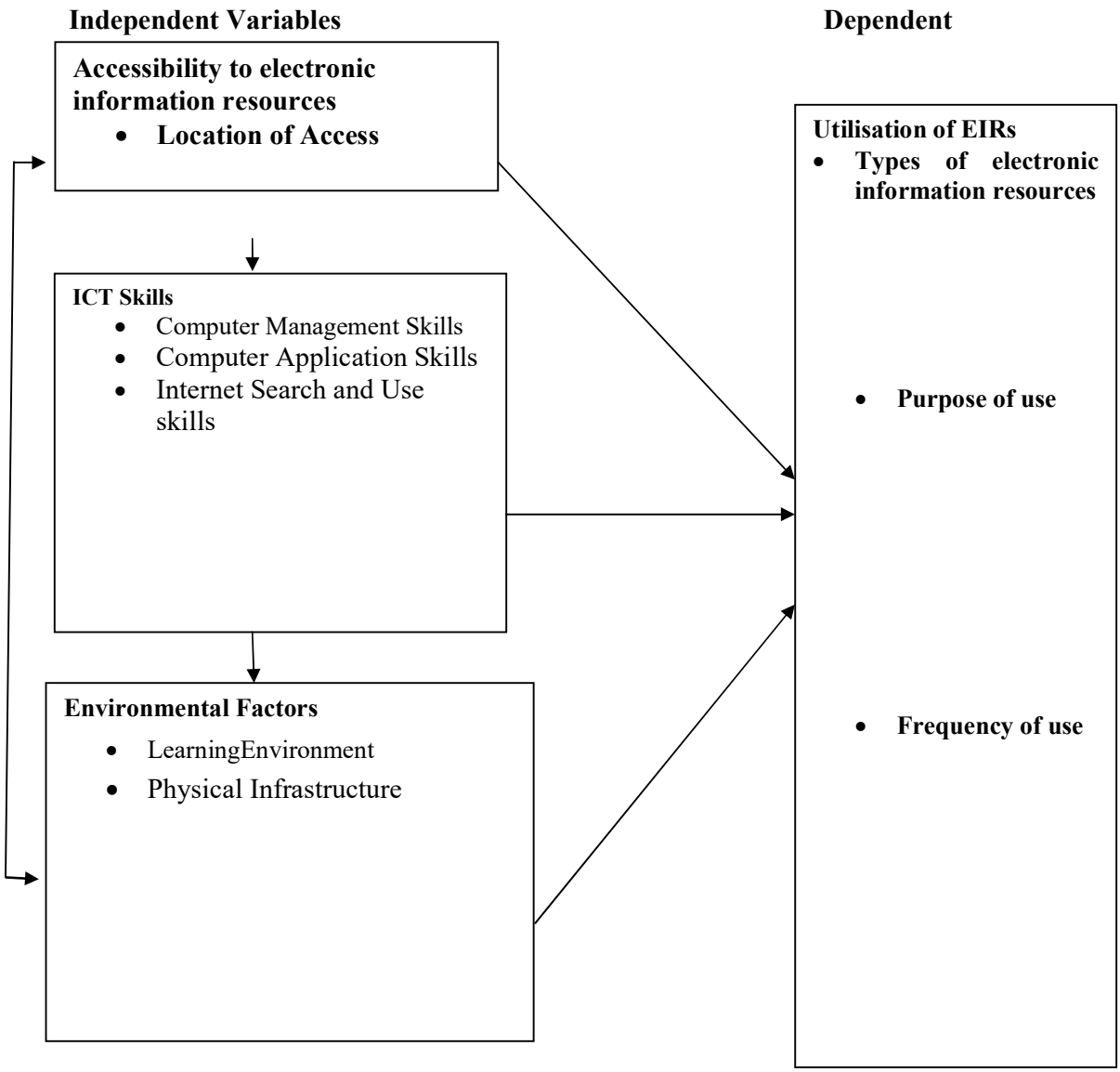

Fig 2.2: Conceptual (AISEF) Model showing relationship between independent variables (Accessibility of EIRs, skills in ICT, and Environmental factors) and dependent variable (Use of EIRs) developed by the researcher.

2.14 Appraisal of the literature reviewed

Electronic information resources are crucial components of library repository and different categories of students within the learning space depend on these resources for their academic pursuits. Within the university setting, undergraduates rely on these resources for learning and research activities. This chapter reviewed literature on electronic resources accessibility, ICT skills and environmental factors and the use of EIRs among undergraduates in universities. Evidences abound in literature that students including undergraduates in Nigerian universities are not making optimum use of these resources to improve their learning. Efforts have been made by scholars to examine the extent of utilisation of EIRs in Nigerian universities, with a view to improving the effective use of these learning resources by the students.

Many studies have found that ICT skills and access to EIRsinfluencedEIRsusage among undergraduates at local and international levels. However, it is clear from the literature reviewed that only few researches have been conducted into finding the extent to which electronic resources, accessibility, ICT skills, and environmental factors correlate with EIRsuse. It was also revealed from the review that no concerted effort has been made by scholars in the fields of library and information science to conduct studies to reveal the joint contribution of accessibility, skills in ICT, and environmental factors on the usage of EIRs by undergraduates in Nigerian universities.

A review of literature indicates that accessibility remains an important factor that could engender effective utilisation of library resources, especially at the higher level of education. Undergraduates require access to learning resources like EIRs to instructional purposes. The implication is that accessibility is a factor that could determine the utilisation of EIRs by the undergraduates.

Findings from literature also revealed that library users, especially undergraduates are expected to possess relevant ICT skills to be able to access and utilise EIRs in the library. ICT skills like computer management and internet search skills are prerequisite competences that undergraduates need to access and use these library resources for instructional purposes. Also, it could be deduced from literature that the environment plays strategic roles in the effective utilisation of library resources.

However, the composite effects of these factors on the utilisation of EIRs among undergraduates have not been properly examined in literature, especially in

Nigeria.Effective utilisation of EIRs by the undergraduates could largely be a function of some critical factors like accessibility, ICT skills and environmental factors. These are the gaps in literature that are yet to be filled by scholars, especially within the Nigerian university system. This study was, therefore, carried out to investigate electronic resources accessibility, ICT skills and environmental factors as correlates of undergraduates' EIRs utilisation in Federal Universities in North-Central Nigeria.

CHAPTER THREE
METHODOLOGY

This chapter focuses on research design, population of the study, population sample and sampling technique, validity and reliability of instruments, the technique for data gathering and the technique of data analysis.

3.1 Research design

Survey research design of the correlational type was adopted for the study. Simon and Goes (2013) emphasized that correlational research is good for conducting social and behavioral studies in a situation where no variables are manipulated. It is a type of research used to test hypotheses about correlational as well as cause-and-effect relationships. This design was considered appropriate because it investigated the relationship among environmental factors, ICT skills, accessibility and utilisation of EIRs by undergraduates in federal universities in North-Central geo-political zone, Nigeria.

3.2 Population of the study

The population for this study comprised the undergraduates in the five conventional federal universities in North-Central, Nigeria. The total population of the undergraduates in the universities was 46,912.The breakdown of the population is presented in Table 3.1.

Table 3.1: Distribution of the study Population

S/N	Universities	Total Number of Faculties	Total Population of Students
1.	University of Abuja, Abuja	10	13,002
2.	University of Ilorin, Kwara State	14	21,250
3.	Federal University, Lokoja, Kogi State	3	2,100
4.	Federal University, Lafia, Nassarawa State	3	2,750
5.	University of Jos, Plateau State	10	7,810
	Total		**46,912**

Source: March 2017, from the universities' websites

It is believed that the selected universities operate the same educational curriculum and their facilities could be measured uniformly.

3.3 Sample and sampling technique

The study used multi-stage sampling procedure to select universities and undergraduates across the Federal universities in the region. The sampling was carried out in 3 stages, as discussed below:

In the first stage, federal-owned conventional universities were purposively selected from the North-Central region. These universities are University of Abuja, FCT, Abuja; University of Jos, Plateau State; Federal University, Lafia, Nassarawa State; Federal University, Lokoja, Kogi State; and University of Ilorin, Kwara State. The Federal University of Agriculture, Markurdi, Benue State and the Federal University of Technology, Minna, Niger State were excluded because they are specialized universities. It is believed that the selected universities operate the same educational curriculum and their facilities could be measured uniformly. This provided the baseline assumption for the study.

In the second stage, the faculties common to all the selected universities were purposively selected. The selected faculties are Arts, Social Sciences and Sciences. Also, two common departments in all the universities were purposively selected from each of the faculties. Thus, Departments of English and History were selected from Faculties of Arts, while Chemistry and Mathematics Departments were selected from Faculties of Sciences. Also, Departments of Economics and Political Science were selected from Faculties of Social Sciences (See Appendix II for detail).

At the third stage of the sampling, 20% of the total population of undergraduates from each of the departments was proportionately selected from the chosen universities. This was to ensure equal representation of the respondents from the selected universities. The respondents in the study were limited to 200-400 level undergraduates in the selected universities. The 100 level students were excluded because they were considered fresh and might not have adequate information about the topic of investigation. Therefore, a total of 1,258 undergraduates constituted the sample for the study (Table 3.2).

Table 3.2 Sample for the study

University	Faculty	Department	Students' Population	Sample Size: 20% of Total Population of Students
University of Abuja, FCT, Abuja	Arts	English	160	32
		History	310	62
	Sciences	Chemistry	145	29
		Mathematics	155	31
	Social Sciences	Economics	255	51
		Political Science	315	63
Total			**1,340**	**268**
University of Ilorin, Kwara State	Arts	English	300	60
		History	595	119
	Sciences	Chemistry	525	105
		Mathematics	445	89
	Social Sciences	Economics	385	77
		Political Science	345	69
Total			**2595**	**519**
Federal University, Lokoja, Kogi State	Arts	English	155	31
		History	140	28
	Sciences	Chemistry	100	20
		Mathematics	130	26
	Social Sciences	Economics	165	33
		Political Science	215	43
Total			**905**	**181**
Federal University, Lafia, Nassarawa State	Arts	English	70	14
		History	65	13
	Sciences	Chemistry	110	22
		Mathematics	55	11
	Social Sciences	Economics	105	21
		Political Science	160	32
Total			**565**	**113**
University of Jos, Plateau State	Arts	English	120	24
		History	165	33
	Sciences	Chemistry	125	25
		Mathematics	75	15
	Social Sciences	Economics	205	41
		Political Science	195	39
Total			**885**	**177**
Grand Total			**6290**	**1258**

Sources: Academic Planning Units, 2015; Preliminary investigation November/December, 2015

3.4 Research instruments

Instruments used for data collection were questionnaire and checklistThe questionnaire, tagged "Electronic Resources Accessibility, ICT Skills, Environmental Factors and Electronic ResourcesQuestionnaire (ERACISENFQ)" was adapted by the researcher to elicit data from respondents. The questionnaire was divided into six sections aimed at investigating relationships among the variables in the study. Section A of the instrument tagged "Respondents Background Information" focuses on gathering data about the backgrounds of the respondents. The items comprise respondent's institution, faculty, department, age, gender, level of study and years of using ICT-based resources.

Section B of the questionnaire focuses accessibility to electronic resources" (AER) [adapted from Thanuskodi, 2012; 2013]. It was included with a view to collecting data on the degree/extent of accessibility and location of EIRsby the respondents. The scale has 13 items measured on a modified 4-point Likert scale of "Very Easily Accessible =4", "Easily Accessible=3", "Occasionally Accessible =2", and "Not Accessible=1". The section on access location of EIRs contains a checklist of possible location of access from which the respondents ticked the ones applicable to them.

Section C is on Students' ICT Skills (SIS). This scale was adapted from Buabeng-Andoh (2012). There are 39 items covering the 3 ICT skills categories including computer management skills, computer application skills and internet search skills. This instrument is measure on a 4-point Likert scale of Strongly Agree, Agree, Disagree and Strongly Disagree.

Section D of the questionnaire focused on obtaining data on Environmental Factors (ENV). It specifically focused on the environmental factors related to accessing and the use of EIRs by respondents. It was adapted from Ajayi and Aramide (2012)and it has 20 items in form of statements to which the respondents indicated their extent of their agreement or disagreement with three subs (learning environment and physical infrastructure) on a modified 4 points Likert scale.

Section E of the questionnaire was designed to collect information on the kinds of EIRs used, purpose of the use of EIRs and degree ofutilisation of EIRs by the respondents. The section on the purposes of using EIRs proposed a list to which respondents responded to. On the other hand, the scale on the extent of use of EIRs has 13 items measured on a modified 6 points Likert scale of 'Daily=6', 'Twice a

week = 5', 'Fortnightly = 4', 'Monthly = 3', I cannot Say = 2' and 'Never Use = 1'. It was tagged "use of EIRs" and adapted from Singh, (2012; and Thanuskodi, (2013).

The last section, Section F of the questionnaire sought information on the constraints to the usage of EIRs by the respondents. It is tagged 'Constraints to EIRs use scale (CEUI)'. It has 23 items which described constraints that can hinder the use of EIRs. The extent of hindrance is measured on a modified 4 points Likert scale of 'Great Extent = 4', 'Moderate Extent = 3', 'Little Extent = 2' and 'No Extent = 1'.

Observation checklist

This instrument was used to check the available library resources in the selected universities that undergraduates can use for learning and research purposes.The researcher checked the available resources in the library that they can access to facilitate their academic pursuits.

3.5 Validity and reliability of the instrument

Both face and content validity of the instruments were carried out to ensure accurate measurement of the variables. Lawshe's validity ratio was used to determine the content rationality of the instrument. This was done through issuance of copies of the instrument to the research supervisors and two experts in the field of library and information science to peruse and criticize. Corrections were made based on the suggestions of the experts and the final version was adopted for the study.

Test-retest method was used to find out the reliability co-efficient of the instrument. Thirty (30) copies of the instrument were administered to undergraduates in the University of Ibadan over a period of two weeks. These respondents comprise undergraduates, who were not part of the study. The correlation co-efficient between the test scores and the re-test was used to determine the research instrument's reliability. The Pearson Product Moment Correlation (PPMC) was used to correlate the scores at the interval level. The results are presented in Table 3.3.

Table 3.3: Reliability coefficients of the research instrument

Scale	**Accessibility, ICT Skills, Environmental factors and EIRsQuestionnaire (AISEFEQ)**	
	Number of Items	**Reliability coefficient (r)**
Accessibility to ER	13	0.71
ICT Skills Computer Management Computer Application Internet Search and Use skills	39	 0.78 0.81 0.83
Environmental factors Learning environment Physical infrastructure	20	 0.79 0.82
Use of EIRs	17	0.85

3.6 Procedure for data collection

The researcher obtained a letter of introduction from the Acting Director, Department of school library and media technology, Faculty of Education, University of Ibadan, Nigeria. It was addressed to all the heads of departments selected for the study to seek their permission to administer copies of the questionnaire to undergraduates in their various departments. The administration of the questionnaire was done over a period of 20 weeks. Five trained research assistants were engaged in the administration and receipt of the administered questionnaire.

3.7 Method of data analysis

Descriptive statistics, frequency counts, percentages, means and standard deviation, inferential statistics, Pearson's Product Moment Correlation and multiple regressions analyses were employed to analyse data collected for the study. Descriptive method of analysis was used for research questions 1 to 8 while multiple regression was used for research questions 9 and 10. The Pearson's Product Moment Correlation was used to test the hypotheses 1-3at 0.05 level of significance.

3.8 Ethical consideration

Collection of data for the study was coordinated in line with the informed consent, institution permission and anonymity of the respondents. Permission was sought from the study participants through an informed consent note where the relevance and benefits of the study was explained and their willingness to participate was ascertained. The participants were given the opportunity to ascertain whether or not they understand the information in the questionnaire. Data was collected without disclosing respondents' identities and researcher ensured that no participant was linked to any response.

There was no monetary reward for participating in the study. The questions on the instrument were structured in such a way that the response does not possess any detrimental outcomes to the respondents. The researcher then visited the selected institutions to administer the instruments on a hand–to-hand basis in conjunction with the research assistants employed for the study. The researcher adequately sensitised the participants about what is being sought after to enhance and encourage their participation in the study. The participants were duly informed and assured that the information being requested of them was treated with utmost confidentiality.

Participants' confidentiality and anonymity were ensured by not requesting for identifying details such as names, hence, confidentiality was ensured and maintained throughout the study. In addition, personal information pertaining to the participants was used strictly for this research purpose only, that is, towards contributing to knowledge and best practices pertaining to the use of electronic resources for educational enhancement.

There was no conflict of interest, academic plagiarism because this study complement and add value to the empirical. Electronic resources accessibility, ICT skills and environmental factors and utilisation of EIRs by undergraduates in federal universities in North-Central geo-political zone, Nigeria The principle that guides the data collection, analysis and interpretation was firmly adhered to in order to boost the integrity and validity of the study.

3.9 Questionaire administration and response rate

Nine hundred and twenty-five (925) copies of the questionnaire were duly completed and returned out of 1258 copies administered. This represents 73.5% response rate; which is considered adequate and appropriate for the study.

CHAPTER FOUR
RESULTS AND DISCUSSION OF FINDINGS

This chapter presents results and discussion of data analysis on the relationship between electronic resources accessibility, ICT skills and environmental factors and utilisation of EIRs by undergraduates in federal universities in North-Central geo-political zone, Nigeria.

4.1 Demographical distribution of the respondents

Table 4.1 shows the demographic distribution of the respondents across the selected universities in North-Central Nigeria in terms of age, gender, department, level of study and length of years of using ICT-based resources.

Table 4.1: Demographic distribution of the respondents

S/N	Variables		Number	Percentage (%)
1.	University	Federal University Lafia	89	9.6
		University of Jos	86	9.3
		University of Abuja	116	12.5
		University of Ilorin	498	53.8
		Federal University Lokoja	136	14.7
2.	Age	below 16yrs	86	9.3
		17 - 20 years	329	35.6
		21 - 30 years	438	47.4
		31 years and above	72	7.8
3.	Gender	Male	466	50.4
		Female	459	49.6
4.	Department	English	174	18.8
		History	311	33.6
		Chemistry	138	14.9
		Mathematics	158	17.1
		Economics	125	13.5
		Political Science	19	2.1
5.	Level of study	200 level	347	37.5
		300 level	394	42.6
		400 level	184	19.9
6.	Length of years of using ICT-based resources	Don't use	313	33.8
		Less than 1 year	209	22.6
		1 - 3 years	318	34.4
		4 years and above	85	9.2
			Total= 925	

The information in Table 4.1 shows the distribution of respondents across the selected institutions.The University of Ilorin has the highest number of respondents (498 53.8%), followed byFederal University, Lokoja (136, 14.7%). University of Jos has the lowest number of respondents (86, 9.3%). Also, 50.4% of the respondents are males while 49.4 are females. In terms of age, 47.4% are between 21-30 years. This indicates that many of these respondents are digital natives, who live in media saturated environments. The result further revealed that majority of the respondents (403, 43.6%) affirmed that they have been using ICT-based resources for an upward of more than a year. It can be inferred that most of the undergraduates in federal universities in North-Central, Nigeria are fairly experienced in the use of ICT-based resources.

4.2 Analysis of research questions

Research Question 1:What is the level of accessibility to EIRs by undergraduates in federal universities in North Central, Nigeria?

Table 4.2 indicates the level of accessibility to EIRsby the undergraduates across the selected univerisities in north-central Nigeria.

Table 4.2: **Level of accessibility to EIRs use by respondents**

Items	VA	A	OC	NA	Mean	STD.D
Electronic Theses	274 (29.6%)	310 (33.5%)	179 (19.4%)	162 (17.5%)	3.75	0.90
CD-ROMs	249 (26.9%)	295 (31.9%)	187 (20.2%)	194 (21.0%)	3.66	0.88
Electronic Journals	245 (26.5%)	272 (29.4%)	233 (25.2%)	245 (26.5%)	3.66	0.85
Online catalogue	221 (23.9%)	266 (28.8%)	275 (29.7%)	163 (17.6%)	3.60	0.71
Electronic Database	162 (17.5%)	383 (41.3%)	198 (21.4%)	183 (19.8%)	3.55	0.74
Electronic Manuscripts	164 (17.7%)	360 (38.9%)	203 (21.9%)	198 (21.4%)	3.52	0.81
Research report	168 (18.2%)	339 (36.6%)	228 (24.6%)	190 (20.5%)	3.52	0.69
Online reference work	142 (15.4%)	347 (37.5%)	236 (25.5%)	200 (21.6%)	3.47	0.68
Electronic Magazines/ Newspapers	183 (19.8%)	254 (27.5%)	258 (27.9%)	230 (24.9%)	3.39	0.72
Bibliographic database	124 (13.4%)	315 (34.1%)	240 (25.9%)	246 (26.6%)	3.34	0.82
Electronic books	88 (9.5%)	317 (34.3%)	315 (34.1%)	205 (22.2%)	3.31	0.76
e-Full text articles	75 (8.1%)	255 (27.6%)	345 (37.3%)	250 (27.0%)	3.17	0.73
Electronic maps	93 (10.1%)	337 (36.4%)	276 (29.8%)	219 (23.7%)	3.07	0.66

Weighted Average = 3.46

Key=Very Accessible (VA=4), Accessible (A=3), Occasionally Accessible (OA=2), Not Accessible (NA=1)

With the weighted average of 3.46. many undergraduates in the selected universities have access to the EIRs provided by the libraries.The result showed that e-theses, CD-ROMs, e-Journals and online catalogues were the major EIRswhich undergraduates in federal universities in North-Central, Nigeria had access to. However, it should be noted that high accessibility does not mean high level of utilisation among the undergraduates.

Research Question 2: **What are the points of access to EIRs by undergraduates in the federal universities in North Central Nigeria?**

This table reveals the avenues through which undergraduates access the EIRs providedby their libraries.

Table 4.3: Point of access to EIRs by undergraduates in federal universities in North-Central, Nigeria

Access Point	Frequency	Percentage (%)
Lecture rooms	555	60.0
Home	522	56.4
University library	406	43.9
Cybercafé	378	40.7
Hostel	339	36.6

Table 4.3 indicates that 555 respondents (60.0%) and 522respondents (56.4%) had access to EIRs in the lecture rooms and home respectively. 40.7% indicated that they access EIRs in cybercafé. The implication is that the lecture rooms and home were the major points where undergraduates in federal universities in North-Central Nigeria accessed electronic information resources.

Research Question 3:What is the level of ICT skills possessed by undergraduates in the federal universities in North Central, Nigeria?

Table 4.4.: Level of ICT skills possessed among undergraduates in federal universities in North-Central, Nigeria

This table is divided into 3 sections to show the level of ICT skills possess by the undergraduates based on computer management, computer application and internet search skills.

Table 4.4a: Computer Management Skills

ICT Skills Items	SA	A	D	SD	Mean
Computer Management Skills I can connect computer and its peripherals (mouse, keyboard, monitor,)	311 (33.6%)	359 (38.8%)	115 (12.4%)	140 (15.1%)	3.10
I have the skill to alter the layout and positioning of test and images	343 (37.1%)	387 (41.8%)	93 (10.1%)	102 (11.2%)	3.43
I can divide page layout into columns	340 (36.8%)	393 (42.5%)	98 (10.6%)	94 (10.2%)	3.38
I can create a distribution list of contacts	376 (40.7%)	375 (42.4%)	82 (8.9%)	92 (10.0%)	3.31
I am knowledgeable in the use of database	334 (36.1%)	348 (37.6%)	144 (15.6%)	99 (10.7%)	3.35
I can save text and image from web pages	307 (33.2%)	392 (42.4%)	123 (13.3%)	103 (11.1%)	3.31
I can sort messages and file in create folder	301 (32.5%)	362 (39.1%)	154 (16.7%)	108 (11.7%)	3.30
I can save/use bookman/favorites for marking site	321 (34.7%)	358 (38.7%)	157 (17.0%)	89 (9.6%)	3.28
I am able to organize electronic file into folder	273 (29.5%)	279 (30.2%)	218 (23.6%)	155 (16.8%)	3.03
I have skill to work in an interactive platform such as video conferencing and chart room.	334 (36.1%)	384 (41.5%)	110 (11.9%)	97 (10.5%)	3.33

Table 4.4b: Computer Application Skills

	SA	A	D	SD	Mean
Computer Application Skills I am competent in locating and running a program on the computer	333 (36.0%)	308 (33.3%)	111 (12.0%)	173 (18.7%)	3.57
I can use cloud-based software e.g. drop box, e-mail	311 (33.6%)	344 (37.2%)	99 (10.7%)	171 (18.5%)	3.45
I can use CD-ROMs-based software	402 (43.5%)	329 (35.6%)	190 (20.5%)	104 (11.2%)	3.31
I have the competence to search for appropriate files on the computer system	333 (36.0%)	317 (34.3%)	193 (20.9%)	82 (8.9%)	3.15
I can backup file into various media types	241 (26.1%)	281 (30.4%)	261 (28.2%)	142 (15.4%)	3.01
I can import test and images into a word processor	349 (37.7%)	395 (42.7%)	75 (8.1%)	106 (11.5%)	3.26
I can use simple editing programme e.g. bold, italics, front size.	347 (37.5%)	375 (40.5%)	92 (10.0%)	111 (12.0%)	3.24
I can insert tables in a document	220 (23.8%)	284 (30.7%)	276 (29.8%)	145 (15.7%)	3.02
I can create new document template	238 (25.7%)	261 (28.2%)	285 (30.8%)	141 (15.2%)	3.02
I can input and use formula for solving problems.	363 (39.2%)	384 (41.5%)	94 (10.2%)	84 (9.1%)	3.37
I am able to input data in row and columns	366 (39.6%)	368 (39.8%)	125 (13.5%)	66 (7.1%)	3.26
I am able to produce charts and graphs for data analysis	358 (38.7%)	374 (40.4%)	98 (10.6%)	95 (10.3%)	3.16
I can print a selected area in spreadsheet	237 (25.6%)	272 (29.4%)	285 (30.8%)	131 (14.2%)	3.03
I can sort data in spreadsheet	221 (23.9%)	279 (30.2%)	280 (30.3%)	145 (15.7%)	3.03
I have the skill to modify colours of text, background and line	358 (38.7%)	381 (41.2%)	86 (9.3%)	100 (10.8%)	3.31
I can produce appropriate handout format	332 (35.9%)	357 (38.6%)	138 (14.9%)	98 (10.6%)	3.10
I can create a basic presentation package	315 (34.1%)	290 (31.4%)	264 (28.5%)	56 (6.1%)	3.07
I can change slide timing and presentation options	244 (26.4%)	286 (30.9%)	261 (28.2%)	134 (14.5%)	3.01

Table 4.4c: Internet Search and Use Skills

Internet Search and Use Skills I competent in using search engines to find information on the internet	316 (34.2%)	356 (38.5%)	161 (17.4%)	102 (11.0%)	3.37
I can use Boolean logic searching technique	387 (41.8%)	358 (38.7%)	125 (13.5%)	55 (6.0%)	3.52
I am conversant with e-journal	383 (41.4%)	360 (38.9%)	118 (12.8%)	64 (6.9%)	3.47
I can determine appropriate search term	384 (41.5%)	363 (39.2%)	116 (12.5%)	62 (6.7%)	3.47
I am skillful in the use of search engine	360 (38.9%)	383 (41.4%)	94 (10.2%)	88 (9.5%)	3.38
I can formulate search queries	320 (34.6%)	405 (43.8%)	52 (5.6%)	148 (16.0%)	3.35
I am skilled in the use of e-library tool e.g. CD-ROM OPAC, subject gateway	323 (34.9%)	373 (40.3%)	112 (12.1%)	117 (12.6%)	3.35
I can work in a networked environment	318 (34.4%)	360 (38.9%)	128 (13.8%)	117 (12.7%)	3.20
I can access and explore the internet via website addresses	314 (34.0%)	364 (39.4%)	126 (13.6%)	121 (13.1%)	3.20
I am knowledge in accessing database structure using	290 (31.4%)	380 (41.1%)	106 (11.5%)	149 (16.1%)	3.15
I can download file from the internet	279 (30.2%)	243 (26.3%)	221 (23.9%)	182 (19.7%)	2.96

Weighted Average Mean = 3.25

Key=Strongly Agree (SA=4), Agree (A=3), Disagree (D=2) and Strongly Disagree (SD=1)

Tables 4.4 (a, b and c) reveal the level of ICT skills possessed by the respondents.

In table 4.4a that measures the computer management skills, 79.3% of the undergraduates are of the opinion that they can divide page layout into columns, while 78.9% of the respondents believed that they have the skill to alter the layout and positioning of test and images. Also, 59.7% affirmed that they can organize electronic file into folder.

In table 4.4b which focuses on the computer application skills, 70.8% of the undergraduates affirmed that can use cloud-based software e.g. drop box and e-mail effectively, while 69.3% are competent in locating and running a program on the computer. Also, 55% can print a selected area in spreadsheet.

Lastly, table 4.4c focuses on the internet search and use skills. 80.7% of the undergraduates affirmed that they can determine appropriate search term on the internet while 80.5% can use Boolean logic searching technique. However, about 56.5% of the respondents can download file from the internet.

Generally, the weighted mean is 3.25 and this implies that undergraduates in the federal universities in North Central, Nigeria possessed the required ICT skills to use EIRs in their institutions.

Research Question 4: What are the environmental factors that can affect the use of EIRs available in federal universities in North-Central geo-political zone, Nigeria?

This table shows that environmental factors that affect effective use of available EIRs in the selected universities. The factors are categorized under learning environment and physical infrastructures.

Table 4.5: Environmental factors that affect the use of available EIRs

Items	SA %	A %	D %	SD %	Mean	Std Dev.
Learning Environment I cannot use EIRs in my institution because of non-conducive environment	106 (11.5%)	175 (18.9 %)	334 (36.1 %)	310 (33.5 %)	2.92	.832
Computers provided in the university library for EIRs access and use are enough	123 13.3	183 19.8	366 39.6	253 27.4	2.81	.795
The rules and regulation on the use of EIRs in my institution are too hard	154 16.6	182 19.7	403 43.6	186 20.1	2.67	.771
Interaction with colleagues enable me to used EIRs effectively	140 15.1	301 32.5	275 29.7	209 22.6	2.40	.663
My academic work does not allow me to make use of electronic information resources	160 17.3	221 23.9	380 41.1	164 17.7	2.59	.678
There are adequate rules and regulation on the use of EIRs in my institution	182 19.7	288 31.1	257 27.8	198 21.4	2.49	.729
There is adequate administrative and technical support for EIRs use by students	184 19.9	235 25.4	365 39.5	141 15.2	2.50	.732
There are adequate polices on use of EIRs use in my institution	170 18.4	332 35.9	224 24.2	199 21.5	2.51	.610
Environment in the library is conducive	175 18.9	278 30.1	332 35.9	140 15.1	2.53	.678
There are polices to support EIRs use for academic work in my institution	159 17.2	349 37.7	300 32.4	117 12.6	2.59	.579
Physical Infrastructure There is a reliable internet connection for accessing and using e-recourses in my institution	167 18.1	459 49.6	197 21.3	102 11.0	2.75	.700
There is adequate infrastructural facilities to support EIRs use	179 19.4	449 48.5	183 19.8	114 12.3	2.73	.599
The computer provided in ICT Centre for EIRs access and use are enough	160 17.3	186 20.1	305 33.0	274 29.6	2.25	.769
There is adequate computers connected to the internet for EIRs access and use	276 29.8	+259 28.0	274 29.6	116 12.5	2.75	.579
There are adequate computer accessories and resources (e.g. printer, scanners etc.) to support EIRs in my institution	144 15.6	251 27.1	376 40.6	154 16.6	2.41	.586
There is no steady power supply in my institution	282 30.5	310 33.5	227 24.5	106 11.5	2.17	.589
Access points for EIRs use in my institution are inadequate	276 29.8	353 38.2	222 24.0	74 8.0	2.10	.813
Weighted mean = 2.54						

In terms of learning environment, 67% of the respondents disagree with the statement “Computers provided in the university library for EIRs access and use are enough”. The implication is that there are no enough computers to access these learning resources in the selected libraries. Also, 51% disagree with the statement that “environment in the library is conducive”. This implies that many library environments are conducive for effective utilisation of EIRs by undergraduates.

In the category of physical infrastructure, 67.7% agreed that “there is a reliable internet connection for accessing and using e-recourses in their institutions”. However, 64% affirmed that “there is no steady power supply in their institutions to encourage the use of EIRs”.

Generally, environmental factors show lack of conducive environment ($\bar{x}$= 2.92), inadequate provision of computers for accessing and usage of electronic information resource ($\bar{x}$= 2.81) as well as hard and cumbersome regulations and policies ($\bar{x}$ = 2.67) ranked highest among the list of environmental factors that affected the use and non-use of EIRs among the respondents. Furthermore, inadequate number of computers connected to the Internet ($\bar{x}$= 2.75), inadequate of power supply in respondents’ institutions ($\bar{x}$= 2.17) and inadequate access points for EIRs use ($\bar{x}$= 2.10) `ranked least among the environmental factors that affected EIRs usage among the respondents. Therefore, it can be deduced from the analysis that lack of conducive environment, inadequate provision of computers for accessing and use of EIRs and stringent regulations and policies were the major environmental factors that limited use of EIRs among undergraduates in the federal universities in North-Central, Nigeria.

Research Question 5:What are the types of EIRs available in federal universities in North-Central, Nigeria?

The table indicates that available EIRs in the selected federal universities that could be used by undergraduates for learning and research.

Table 4.6: Available EIRs in the Federal universities in North-Central, Nigeria

Electronic information resources	Frequency	Percentage
Bibliographic database	671	72.5
Online catalogue	579	62.6
Magazines/Newspapers	523	56.5
Manuscript	523	56.5
CD-ROMs	518	56.0
Online reference works	497	53.7
Full text articles	367	39.7
Maps	339	36.6
Journals	325	35.1
Research reports	307	33.2
Electronic books	234	25.3
Electronic database	234	23.3
Electronic theses	214	23.1

Table 4.6 presents information on the types of EIRs available for use in the federal universities in North-Central, Nigeria. TheEIRsavailable in the universities, as affirmed by the respondents were bibliographic databases (671, 72.5%), online catalogue (579, 62.6%), magazines/newspapers (523, 56.5%) and manuscripts (523, 56.5%). These constitute the major EIRsavailable in their institutions. OtherEIRsavailable included CD-ROMs and online reference works. Therefore, bibliographic databases, online catalogue, magazines/newspapers, manuscripts, CD-ROMs and online reference works were the major EIRsavailable in the selected universities surveyed.

Research Question 6: **For what purposes do undergraduates in the federal universities in North-Central, Nigeria use electronic information resources?**

The purposes for which undergraduates utilise EIRs are reflected in table 4.7. This ranges from searching, studying, learning to updating knowledge.

Table 4.7: Purpose of Electronic Resources Utilisation by Undergraduates

Purpose	Frequency	Percentage	Mean	Std. Dev.
Searching/retrieving current information	623	67.4	2.75	.089
Studying	532	57.5	2.66	.081
Learning	518	56.0	2.59	.079
Complementing classroom learning/activities	436	47.1	2.43	.076
Writing thesis and report	427	46.2	2.37	.077
Cooperation and collaborating with other students	393	42.5	2.28	.071
Updating my knowledge	329	35.6	2.18	.053
Collaborative learning	317	34.3	2.11	.051
Course work	275	29.7	2.09	.052
Reference checking	234	25.3	2.03	.049
Entertainment	214	23.1	2.02	.043
Literature search	208	22.5	2.01	.041
Writing research funding proposal	123	13.3	1.89	.041

Table 4.7 presents the purpose of EIRs utilisation for which undergraduates utilise EIRs. 67.4% of the undergraduates utilise EIRs to search and retrieve current information, while 57.5% use the learning resources for studying. Also, only 13.3% use EIRs for writing research funding proposals. Generally, the result revealed thatsearching for current information and studying constituted the major purposes for which undergraduates in federal universities in North-Central Nigeria made use of EIRs.

Research Question 7: What is the frequency of usingEIRs by undergraduates in the federal universities in North Central, Nigeria?

This reveals the frequency of using EIRs by undergraduates in the selected federal universities. These include resources like manuscripts, CD-ROMs, online catalogue and so on.

Table 4.8: Frequency of usingEIRs by the undergraduates

Electronic information resources	Daily N %	Twice a week N %	Fortnightly N %	Monthly N %	Undecided N %	Never N %	Mean	Std Dev.
Manuscripts	538 (58.2%)	42 (4.5)	25 (2.7%)	49 (5.3%)	176 (19.0%)	95 (10.3%)	2.53	1.97
CD-ROMs	541 (58.5%)	36 (3.9%)	32 (3.5%)	56 (6.1%)	161 (17.4%)	99 (10.7%)	2.52	1.97
Maps	542 (58.6%)	42 (4.5%)	23 (2.5%)	63 (6.8%)	147 (15.9%)	108 (11.7%)	2.52	1.98
Online catalogue	549 (59.4%)	48 (5.2%)	22 (2.4%)	68 (7.4%)	122 (13.2%)	116 (12.5%)	2.47	1.97
Online reference works	547 (59.1%)	47 (5.1%)	25 (2.7%)	84 (9.1%)	135 (14.6%)	87 (9.4%)	2.43	1.90
Bibliographic database	552 (59.7%)	50 (5.4%)	27 (2.9%)	67 (7.2%)	132 (14.3%)	97 (10.5%)	2.42	1.92
Research reports	552 (59.7%)	61 (6.6%)	24 (2.6%)	48 (5.2)	153 (16.5%)	87 (9.4%)	2.41	1.91
Full text articles	560 (60.5%)	34 (3.7%)	38 (4.1%)	96 (10.4%)	150 (16.2%)	47 (5.1%)	2.33	1.77
e-Magazines/ Newspapers	591 (63.9%)	48 (5.2%)	34 (3.7%)	25 (2.7%)	118 (12.8%)	109 (11.8%)	2.31	1.93
e-Thesis	574 (62.1%	52 (5.6%)	27 (2.9%)	47 (5.1%)	165 (17.8%)	60 (6.5%)	2.30	1.85
Weighted Mean							**2.42**	

From the table, 63.9% use e-magazine and newspaper daily, while 62.1% make use of e-thesis daily for learning and research purposes. Considering the weighted mean of 2.42 as a benchmark, it can be deduced that the undergraduates in the federal universities in North-Central Nigeria only make regular use of manuscripts, CD-ROMs, maps, online catalogue, online reference works and bibliographic databases.

Research Question 8: What are the constraints to the use of EIRs by undergraduates?

This table shows the constraints confronting effective utilisation of EIRs by undergraduates in the selected federal universities.

Table 4.9: Constraints to use of EIRs by undergraduates in the federal universities in North central, Nigeria

Constraint	Great extent N %	Moderate extent N %	Little extent N %	No extent N %	Mean	Std. Dev.
Unavailability of Electronic information resources	240 (25.9%)	229 (24.8%)	219 (23.7%)	237 (25.6%)	2.49	1.13
Inadequacy of available Electronic information resources	272 (29.4%)	223 (24.1%)	189 (20.4%)	241 (26.1%)	2.43	1.16
Coverage on EIRs is not suited to my needs	269 (29.1%)	221 (23.9%)	220 (23.8%)	215 (23.2%)	2.41	1.16
Frequent downtime of server	283 (30.6%)	204 (22.1%)	221 (23.9%)	217 (23.5%)	2.40	1.15
Lack of training on EIRs usage	373 (40.3%)	260 (28.1%)	134 (14.5%)	158 (17.1%)	2.08	1.11
Limited access to computer terminals	608 (65.7%)	115 (12.4%)	43 (4.6%)	159 (17.2%)	1.73	1.15
Lack of ICT skills to effectively access Electronic information resources	639 (69.1%)	130 (14.1%)	39 (4.2%)	117 (12.6%)	1.60	1.04
Technophobia (fear of ICT facility)	663 (71.7%)	89 (9.6%)	59 (6.4%)	114 (12.3%)	1.59	1.05
Lack of support from university staff	632 (68.2%)	118 (12.8%)	93 (10.1%)	82 (8.9%)	1.59	.99
Uncooperative library staff to facilitate access	657 (71.0%)	81 (8.8%)	101 (10.9%)	86 (9.3%)	1.58	1.01
Unfriendly user interface	642 (69.4%)	104 (11.2%)	101 (10.9%)	78 (8.4%)	1.58	.99
Time consumption	651 (70.4%)	113 (12.2%)	82 (8.9%)	79 (8.5%)	1.56	.97
Lack of time to use	613 (66.3%)	165 (17.9%)	99 (10.7%)	48 (5.2%)	1.55	.88
Distraction from doing other work	651 (70.4%)	116 (12.5%)	91 (9.8%)	67 (7.2%)	1.54	.94
Lack of awareness about Electronic information resources	666 (72.0%)	103 (11.1%)	75 (8.1%)	81 (8.8%)	1.54	.97
Lack of conducive environment	674 (72.9%)	104 (11.2%)	67 (7.2%)	80 (8.6%)	1.52	.96
Lack of access to Electronic information resources	672 (72.6%)	113 (12.2%)	79 (8.5%)	61 (6.6%)	1.49	.90
Network problem	697 (75.4%)	115 (12.4%)	69 (7.5%)	44 (4.8%)	1.42	.82

Weighted Mean = 1.8

From the result, 53.5% of the respondents indicated that "inadequacy of available Electronic information resources is one of the major challenges confronting the use of EIRs in the universities". Also, 53% affirmed that "coverage on EIRs is not suited to their needs". 68.4% of the undegraduates agree that lack of training on EIRs usage remains a challenge to effectivel utilisation of EIRs. Generally, the results revealed that unavailability of EIRs, inadequacy of electronic information resources, unsuitability of EIRs to respondents' needs, inadequate training and frequent downtime of servers appeared to be the basic impediments to the use of EIRs by undergraduates in the federal universities in North-Central, Nigeria.

Research question 9: **What are the joint contributions of accessibility to electronic information resources, ICT skills and environmental factors to the usage of EIRsby undergraduates in the Federal universities in North-Central, Nigeria?**

This table summarises the joint contributions of all the independent variables on the dependent variable. The independent variables are accessibility to EIRs, ICT skills and environmental factors, while dependent variable is the use of EIRs by the undergraduates in the selected federal universities.

Table 4.10: Summary of regression analysis on the joint contributions of accessibility to electronic information resources, ICT skills and environmental factors to use of EIRs by the undergraduates

Summary Regression Anova

.R	R Square	Adjusted R Square	Std. Error of the Estimate
0.801	0.642	0.588	1.59191

	Sum of squares	df.	Mean Square	F	P	Remark
Regression	1099.175	3	366.392	11.951	.000	Sig
Residual	28391.744	921	30.827			
Total	10290.919	924				

Table 4.10 shows that there was a significant joint contribution of accessibility to electronic resources, ICT skills and environmental factors to the use of EIRs by undergraduates in the federal university libraries in North Central, Nigeria ($F_{(3,924)} = 11.95$, $p<0.05$). The results further showed a co-efficient of multiple correlations (R) of 0.801, a multiple R square of 0.642 and adjusted R^2=0.588.

Research question 10: **What are the relative contributions of accessibility to electronic information resources, ICT skills and environmental factors to the use of EIRs by undergraduates in the Federal universities in North-Central, Nigeria?**

Table 4.11 reveals the relative contributions of each of the independent variables on the dependent variable. The independent variables are accessibility to EIRs, ICT skills and environmental factors, while dependent variable is the use of EIRs by the undergraduates in the selected federal universities.

Table 4.11: Relative contributions of the independent variables to the dependent variable

Variable	**Unstandardised Co-efficient**		**Standardised Co-efficients**		
Model	(B)	Std. Error	Beta	T	Sig.
Constant	3.482	.548	-	6.355	.000
Accessibility	.141	.014	.481	9.533	.000
ICT skills					
Computer Management	.115	.012	.391	10.041	.000
Computer Application	.156	.111	.424	7.432	.000
Internet Search and Use skills	.183	.320	.323	9.211	.000
Environmental factors					
Learning environment	.028	.013	.0440	2.106	.036
Physical infrastructure	.125	.033	.380	1.512	.002

Table 4.11 presented the result of the analysis on the relative contribution of the independent variables to dependent variables, expressed as beta weights, using the standardised regression co-efficient to determine the relative contributions of the independent variables. The table indicates that accessibility to EIRs ($\beta = 0.48$, $t= 9.53$, $p < 0.05$) ranked as the most potent contributor to the use of EIRs, closely followed by ICT skills Computer Management($\beta = 0.39$, $t= 10.041$, $p < 0.05$), Computer Application($\beta = 0.42$, $t= 7.432$, $p < 0.05$) along withInternet Search and Use skills($\beta = 0.32$, $t= 9.211$, $p < 0.05$). Environmental factors was ranked as the least contributor to the use of EIRs by the respondents(Learning environment- $\beta =0.44$, $t= 2.106$, $p < 0.05$) and Physical infrastructure($\beta =0.38$, $t= 1.512$, $p < 0.05$).

4.3 Hypotheses Testing

$H_0$1: There is no significant relationship between accessibility to EIRs and the use of EIRs by undergraduates in federal university libraries in North Central, Nigeria.

The table shows the relationship that exists between accessibility to EIRs and the use of the learning resources by the undergraduates.

Table 4.12: Relationship between accessibility to and use of EIRs by the undergraduates

Variables	Mean	S.D	N	R	P	Remark
Use of EIRs	5.31	3.33	925	0.782*	.000	Sig.
Accessibility	34.06	9.34				

* Correlation Significant at **0.05 level.**

Table 4.12shows a significant correlation that exists between accessibility to and the use of EIRs by undergraduates in the federal universities in North Central, Nigeria ($r=0.78$, $N=925$, $p < 0.05$). Thus, the null hypothesis was rejected. Also, the relationship was found to be positive. This implication is that increase in the level of accessibility to electronic information resources would lead to increase in the level of the use of EIRs by undergraduates in the federal universities in North-Central, Nigeria.

$H_0$2:There is no significant relationship between ICT skills and the use of EIRs by undergraduates in the federal universities in North Central Nigeria.

Table 4.13 reveals the level of relationship beyween ICT skills and the use of EIRs by undergraduates in the selected federal universities.

Table 4.13: Relationship between ICT skills and use of EIRs by undergraduate

Variables	Mean	S.D	N	R	P	Remark
Use of EIRs	5.31	3.33				
ICT Skills						
Computer Management	38.28	11.19	925	0.56**	.001	Significant
Computer Application	53.15	13.41		0.41**		
Internet Search and Use skills	75.86	23.23		0.32**		

* Correlation Significant at **0.05 level.**

Table 4.13Showsa significant positive relationship between ICT skills and use of EIRs by undergraduates in federal universities in North-Central Nigeria (Computer Managementr=0.56, Computer Applicationr=0.41 and Internet Search and Use skillsr=0.32, N=925, $p < 0.05$).Consequently, the null hypothesis was rejected. Pearson Product Moment Correlation was used to analyse the relationship between ICT skills and use of EIRs.

$H_0$3:There is no significant relationship between environmental factors and use of EIRs by undergraduates in the federal universities in North Central, Nigeria.

The table shows the relationship between environmental factors and the use of EIRs by the undergraduates used for the study.

Table 4.14: Relationship between environmental factors and the use of EIRs by undergraduates

Variables	Mean	S.D	N	R	P	Remark
Use of EIRs	5.31	3.33				
Environmental factors						
Learning environment	50.31	9.74	925	.291*	.022	Significant
Physical infrastructure	65.59	10.29		.331*		

* Correlation Significant at 0.05 level.

Table 4.14 indicates that there was a significant positive relationship between environmental factors and the use of EIRs by undergraduates in the federal universities in North-Central, Nigeria (Learning environmentr=0.291 and Physical infrastructurer=0.331, N=925, $p < 0.05$). Thus, the null hypothesis is rejected.

4.4 Discussion of the findings

Research Questions

4.4.1 Undergraduates Accessibility to EIRs

A low level of accessibility was recorded by the undergraduates in this study. The degree of accessibility of EIRs and points of EIRs access among undergraduates in the federal universities in North-Central, Nigeria were investigated. Findings from the study reveal that only a few EIRs such as e-theses, CD-ROMs, e-journals and online catalogues were easily accessible to undergraduates in federal universities in North-Central Nigeria. This might not be unconnected with the fact that undergraduates rely greatly on online journals for their research activities, especially while writing their final year project. Thus, school libraries might give access to e-theses and online journals, so that undergraduates can easily utilise these resources for learning and research purposes. EIRs such as bibliographicdatabases, e-books, full text articles and maps were found not to be easily accessible by the undergraduates.According to Fu (2013), the benefits derivable from the use of EIRs by undergraduates include access to current and up-to-date learning resources, promotion of critical thinking skills and promotion of creative learning environment, and these relevant merits should be made accessible to all categories of students in the classroom.Generally, there is a low level of accessibility to EIRs among the undergraduates in federal universities in North-Central Nigeria. This could be due to the unfriendly environmental factors in most of the libraries and this might reduce the rate of accessibility to the EIRs by the undergraduates.

This result corroboratesAbbas and Song (2020)that a significant number of students are not given adequate access to relevant EIRs; hence, they are deprived of enjoying the benefits derivable from the use of EIRs in their study. Additionally, Mawere and Sai (2018) found that despite the availability of the EIRs facilities in the e-library of the Great Zimbabwe University, adoption and accessibility rate is still very limited among the students. In contrast, Tofi and Fanafa (2019) found that the following e-journals, e-newspapers, Online Public Access Catalogue (OPAC), CD-Rom databases, e-books, online databases, e-research reports, virtual libraries online, science direct online and Ebscohost reference databases EIRs were accessible to a great extent with highest mean score among students in federal university of agriculture library Markudiwhile e-bibliography databases, e-magazines, DVD-ROM, Sabinet reference database as well as e-manuscripts were also accessible, but to a low

extent.

Similarly, Manjack, Dangani and Fari (2018) discovered in their comparative study between Federal University Kashere and Gombe State University that of all the available EIRs in the university libraries, CD-ROMs and DVD were the mostly accessible EIRs among the students in Gombe State University while the respondents from Federal University Kashere acknowledged that IR is the most accessible EIRs in the university. (2017) found that EIRs such as OPAC, e-journals, full-text databases, IRs as well as reference databases were available and accessed for research activities and to support teaching and learning amongst the undergraduates.

4.4.2 Points of access to EIRs by undergraduates in federal universities in North-Central geo-political zone, Nigeria

Findings on the points of access indicate that lecture rooms and homesare the major points whereundergraduates access electronic information resources. This might be due to the fact that some universities usually provide internet access to the students within the campus, especially in the lecture rooms. Also, internet technology has pervaded every aspect of our lives and students rely greatly on the internet for educational and social activities. So, many students are connected to the internet even in their homes to watch online movies and chat on social media. This same internet facilities can be used by the undergraduates at homes to access EIRs for educational purposes.

Observations on location where undergraduates access EIRs may be traceable to the fact that Wi-Fi facilities are available within the universities. This enables the undergraduates to have access to EIRs at cheaper rate or no cost in some instances. This corroborates the findings by Kenchakkanavar (2014) after his study on e-resources types and utilisation in academic library establishesthat EIRs are basically and easily accessible in remote areas. Also, Johnson, Evensen, Gelfand, Lammers, Sipe and Zilper (2012) reported that remote access to EIRs through web is often preferable, owing its additional provision of benefits such as optimum access, fast updating as well as reduction of burden with regards to storage, maintenance and preservation.

Also, Adewale (2016) study reported the importance of making EIRs available in locations within the school and other places within the easy reach of students where they can easily have access and use without difficulties. A strategic external factor

that could influence the utilisation of ICT is access to the requiredfacilities which facilitate effective utilisation for learning and academic activities. In contrast, Tofi and Fanafa(2019) indicated that EIRs such as e-journals, e-newspapers, OPAC, CD-Rom database, e-books, online database, e-research reports, virtual library online, science direct online and Ebscohost reference databases were accessed by the students at the Federal University of Agriculture Markudi Library.

(2017) found out that available EIRs such as OPAC, e-journals, full-text databases, IRs, CD-ROM as well as reference databases were accessiblein the faculty for research and learning activities.This is corroborated by Tariq and Zia (2014) that majority of the students' (86.9%) access point of the EIRs amongst the students is the home personal computer. So, lecture rooms in the faculty and homes are mainly the access points to EIRs by the undergraduates.

4.4.3 ICT skills possessed by undergraduates in federal universities in North-Central, Nigeria

The level of ICT skills possessed by undergraduates in the federal universities in North-Central, Nigeria indicate that the undergraduates possess the required level of ICT skills to use EIRs in the university libraries. The ICT skills of the undergraduates were investigated under three key indicators which are computer management skills, computer application skills and the Internet search and use skills.Generally, the result revealed that undergraduates possess high level of ICT skills ranging from the use of spreadsheets, Microsoft word to the ability to search for information on the internet.

This might not be unconnected with the fact that these undergraduates are mostly Net Generation students, who rely greatly on technology and the internet to solve problems within their environments. In order words, the students live in media-saturated environment that requires them to effectively utilise ICT and possess ICT skills to function and contribute their quotas to the development of the society. To these students, ICT skills remain the requisite competences for educational and non-educational activities. Since they use these skills regularly on daily basis for socio-political engagements, it would be easy for them to deploy same in the utilisation of EIRs for research and learning purposes.

This finding is in line with Sankari and Chinnasamy (2014) who noted that undergraduates in India possessed above average ICT competence in software like

Greenstone, MS office package as well as Linux. Kumar (2013) also reported high level of skills in operating systems, MS-Word and MS-Excel. This was also affirmed by Batool and Ameen (2010) who found high level of skills in word processing and other computer related hardware among their respondents. Mutula (2010) which establishes that undergraduates in University of Botswana have been largely skilled in ICT and this makes it easy for them to access ICT-based resources in their learning process.

In the contrary, Shidi, Igyuve and Tyonum (2015) reported a low level of skills (14%) and poor skills (2%) exhibited by the undergraduates indicating that not all students possessed the required ICT skills. Akande (2014) affirms that some undergraduates in Southwest lacked skills for using advanced web-based ICT packages for web page design, troubleshooting and project management. Chatama (2014) which discovered that undergraduates of institutions in Tanzania did not possess ICT skills for EIRs information retrieval.

4.4.4 Environmental factors and the use of EIRs

The study further investigated environmental factors that can facilitate the use of EIRs by undergraduates in the federal universities in North-Central Nigeria. The findings of the study reveal that lack of conducive environment, inadequate provision of computer systems for accessing and use of EIRsas well as cumbersome regulations are major environmental factors that affect the use of these resources. This might be due to the strategic impact that library environment could have on the level of accessibility by the undergraduates. Learners require favourable environment that will promote learning and research. The EIRs provided by the libraries can, therefore, be effectively utilised, if undergraduates are provided with friendly environments and supporting infrastructure. This finding corroboratesthe results from Shah and Saleem's(2010) study that reported physical environment as a key contributor that affects the use of EIRs by students.They further observed that poor environment, lack of institutional policies as well as other infrastructural facilities could hinder the effective use of EIRs by students in universities.

This finding is in line withOyedum's (2016) who revealed that physical facilities had positive effects on the use of EIRs among undergraduates in selected universities in Nigeria. Also, Khan, Bhatti, Khan and Ismaila (2014) reported that a significant number of students were satisfied with library physical facilities provided by the library management which include lighting system, ventilation facilities, tables,

seating arrangement, space for reading and computer facilities. However, the respondents were dissatisfied with research corner facilities, the standard of air-conditioning system and audio-visual resources provided in the library. Sivathaasan, (2013) asserts that it is possible for the students to access and utilise library resources without stepping into the library building if enabling environment is created to ensure that students can use their digital devices to interact and exchange ideas with other students across the world. Arif and Mahmood (2010) indicated that a significant number of studentswere not satisfied with the library facilities like air conditioning system and lightning system.

It has been observed that a library system with relevant and appropriate facilities would attract young minds for exploration and research activities. Undergraduates would be encouraged to patronise a library system that offers them adequate facilities in a serene atmosphere that encourages deep learning and critical thinking skills of the students. Students require a learning and research environment that is devoid of unnecessary noise and external disturbances. This is to ensure that maximum concentration is maintained throughout their learning and research activities.

4.4.5 Types of EIRs available in federal universities in North-Central geo-political zone, Nigeria

Findings on the types of EIRs available to undergraduates revealed bibliographic databases, online catalogues, magazines/ newspapers, manuscripts, CD-ROMs and online reference works as major EIRs available in the federal universities in North-Central Nigeria for use by the undergraduates. This might not be unconnected with the fact that undergraduates rely largely on these resources to effectively pursue their academic programmes. For instance, manuscripts, online catalogues and online reference works are indispensable virtual learning resources that undergraduates need for learning and research purposes. This finding is in harmony with that of Lo (2017) who found in a study on access to and use of EIRs in Lesotho's library academics that e-mail, search engines, websites, OPAC, e-journals, full-text databases, reference databases, IRs as well as CD-ROMs were listed as types of EIRs available in the library. Moreover, Owolabi, Idowu, Okocha and Ogundare (2016) affirmed that the internet services, e-mails services, online/electronic databases, CD-ROM databases, e-journals, e-books, OPAC and cyber cafes were

highlighted as the types of EIRs available and used by University of Ibadan undergraduates.

Quadri, Adetimirin and Idowu (2014) revealed that e-journals, e-books, CD-ROM, Online databases, OPAC and the Internet were identified as the types of EIRs available to the undergraduate students in private universities in Ogun State, Nigeria. Furthermore, Tariq and Zia (2014) noted that EIRs such as e-books, e-journals, e-theses and dissertations, web-resources, databases, e-prints were the types of available EIRs for use by the students in the University of Karachi Library, Pakistan.Also, Kenchakkanavar (2014) noted in a study on types of EIRs in Pakinstan library, and affirmed that e-book, e-journal, e-newspaper, e-magazines, indexing and abstracting databases, full text database, reference database, statistic database, image collection, multimedia products, e-thesis, e-standards as well as e-patents were the listed types of EIRs available in the library.

4.4.6 Purpose of using EIRs by undergraduates in the federal university in North Central Nigeria

For the purposes of using electronic information resources, the analysis revealed that the undergraduates made use of EIRs mainly for finding current information, studying and complementing classroom learning. Furthermore, the study revealed that on overall basis, the undergraduates in federal universities in North-Central Nigeria do not make regular use of EIRs like manuscripts, CD-ROMs and maps.This is in agreement withSejane, (2017) who found that the major objectives of e-resources use among undergraduates are for communication and supporting teaching and learning activities like research, assignments and lecture requirements. Quadri, Adetimirin and Idowu (2014) affirm that the primary aim of using the EIRs is for assignment, as the large proportion (64%) of the undergraduates from Babcock University and 89.1% from Redeemer University agreed to that. Other purposes indicated in both universities were research/project, term paper and class work.

However, Habiba and Chowdhury (2012) reported that majority of the respondents (54%) used the available EIRs for learning only, followed by those who acknowledged that they used the EIRs for current information. Owolabi, Idowu, Okocha and Ogundare (2016) noted in their study that large proportion of the respondents agreedthat they use the EIRs for academic/course work purposes, followed by those who indicated that they used EIRs for assignment completion.

Other purposes found in the study include: online application/registration, communicate with friends, source for project materials and for personal use.

4.4.7 Frequency of Use of EIRs by undergraduates in the federal universities in North Central Nigeria

Online catalogues, manuscripts, maps and online reference works were found to be the major EIRs used by the undergraduates on regular basis. This might be due to the fact that online catalogues provide a suitable platform for students to access e-books and other online journals from any part of the world. It should be noted that undergraduates require these online manuscripts and online reference works for academic exercise, especially for their final projects. Thus, undergraduates would find online catalogues quite helpful in their academic pursuits. A study carried out by Adeniran (2013) at the Redeemer's University Library, Ede, Nigeria, established that the Internet source, online databases, CD-ROM, OPAC (Online Public Access Catalogue) and e-journals are being commonly used by the students of the institution regularly.Owolabi, Idowu, Okocha and Ogundare (2016) reported that the internet services, cybercafes and the e-mail services were very often used, online databases, CD-ROM databases and e-journals were used occasionally while OPAC and e-books were rarely used by University of Ibadan undergraduate students.

4.4.8 Constraints to the use of EIRs by undergraduates in federal universities in North-Central geo-political zone, Nigeria

Unavailability of EIRs, inadequacy of available EIRs, unsuitability of EIRs to respondents' needs and frequent downtime of server were the major constraintto the use of EIRs. The study also found lack of awareness about available EIRs, conducive environment, access to EIRs and network problem as constraints to the use of EIRs.This might be due to the crucial roles played by the environment in promoting the use of library resources by the undergraduates. This result corroborates the study ofOnwueme and Lulu-Pokubo (2017) which identified lack of awareness, unfriendly user interface, poor internet connectivity, poor power supply, lack of search skills, non-availability of the facilities to access the EIRs and lack of training as constraints to the use of EIRs among academic staff at Port Harcourt Polytechnic's library. Owolabi, Idowu, Okocha and Ogundare (2016) identified many challenges to the use of EIRs among the undergraduates University of Ibadan to include uncooperative staff to facilitate easy access, epileptic power supply, poor internet network, limited access to computer terminals, lack of IT knowledge to effective use the services, distraction from other work, time consuming and wasting. Tariq and Zia (2014) who reported

that sluggish network connection, erratic power supply, spyware and viruses, subscription issues, time wastage, licensing issue, etcetera, were identified as hindrances to the use of EIRs among students of Karachi University in Pakistan.

Quadri, Adetimirin and Idowu (2014) also echoed that poor internet connection, lack of relevant EIRs, powerfailure, difficulty to access, costly access and absenceof assistance from library staff, technical constraints, lack of ICT skill were some of the challenges encountered by the studentsin the EIRs usage. Sejane (2017) indicated that challenges like budget cuts, low internet bandwidth, lack of up-to-date information technology infrastructure, inadequate searching skills, shortage of staff as well as high cost of subscription fees constituted threats to access and use EIRs in the institution's libraries.

Habiba and Chowdhury (2012) who reported that limited access to computers, limited number of titles available, difficulty in locating relevant information, slow downloads as well as poor remote access were the highlighted problems faced by the students in the use of EIRs. Issah (2010), Gwazah (2011) and Egberongbe (2011) identified factors obstructing the use of e-resources in the Nigerian higher institutions as lack of strategic planning, lack of or inadequacy of reliable funding, lack of Internet use to provide information services to users and lack of consistent training for users in new ICT services. Others include lack of information retrieval skills for exploiting electronic information resources, slow Internet access and lack of constant power supply.

4.4.9 Joint Contribution of Accessibility, ICT Skills, Environmental Factors and the Use of EIRs

Findings showed a significant joint contribution of accessibility to electronic resources, ICT skills and environmental factors to the use of EIRs by undergraduates in the federal university libraries in North Central, Nigeria. This might not be unconnected with the pivotal roles of accessibility, ICT skills and environmental factors to the effective utilisation of EIRs, especially at the university level. For undergraduates to effectively utilise these resources for learning and research purposes, accessibility should be guaranteed and they should possess the requisite ICT skills. Also, the library environment should be conducive in terms of learning environment and infrastructural facilities. Onwueme and Lulu-Pokubo (2017) assert that accessibility and ICT skills are critical factors that affect the utilisation of EIRs

among the users.

4.4.10 Relative Contribution of Accessibility, ICT Skills, Environmental Factors and the Use of EIRs

For the relative contribution of the independent variables to the dependent variable, the result shows thataccessibility to EIRs was the most potent contributor to the use of EIRs, closely followed by ICT skills.This implies that improved accessibility to EIRs would result in increased use of EIRs by the undergraduates. The study also revealed that for every level of increase in accessibility to electronic information resources, a 4.8% increase in the level of use of EIRs by undergraduates in the federal universities in North-Central Nigeria would be achieved. This finding is in line with Shaqour and Daher's (2015) which suggested that accessibility is fundamental to the acceptance and the use of EIRs among university students.

Also, improved level of ICT skills of the undergraduates would result in increased use of EIRs. On the other hand, investigation into the degree of influence which advanced ICT skills could have on the use of EIRs revealed that for every level of increase in ICT skills, a 1.3% increase in the degree of use of EIRs by undergraduates in the federal universities in North-Central Nigeria would be achieved. This finding corroborates the findings of Cretchley (2014) which found that the level of ICT skills the students possess affect the use of EIRs, and that maximal usage of EIRs by university students may be hindered by lack of adequate and relevant ICT skills. Also, Manda and Mukangara (2014) corroborated the relevance of necessary ICT skills in a study carried out on the use of EIRs by undergraduates in academic and research institutions in Tanzania. They found out poor ICT skills affected the usage of electronic information resources.

Furthermore, environmental factors also contributed tothe use of EIRs. This implies that improved environmental conditions in the surveyed universities could lead to increased use of EIRs by the undergraduates in such a way that for every level increase in environmental factors, a 0.6% increase in the level of the use of EIRs by undergraduates would be attained. This finding was corroborated by the findings of Saka, Aremu and Adedeji (2012). The author submitted that an ideal learning environment in which factors such as adequate ventilation, noise-free reading areas, adequate lighting, adequate technologies and adequate furniture could enhance students' use of EIRs.

Testing of Hypotheses

Finding from hypothesis 1 shows a significant correlation between accessibility and the use of EIRs by undergraduates in the federal universities in North Central, Nigeria. This implies that increase in the level of accessibility to electronic information resources improved the level of the use of EIRs by undergraduates. This might not be unconnected with the crucial role of accessibility in the utilisation of library resources. Accessibility affords undergraduates the opportunity to become aware of the affordances provided by EIRs and therefore lead to increasing utilisation at this level. This is corroborated by Nyabame and Nzuki, (2014) who found out that accessibility and ease of location determine whether an undergraduate would use EIRs for academic and research activities or not, and it is expected that easy access to EIRs would increase the tendency to use such resources.Aina (2011) concludes that accessibility to EIRs has been a major factor towards the use of the resources and a key determinant in the effective use of EIRs to support and enhance research and education. The values of EIRs in education could easily be manifested by giving undergraduates adequate access to these learning resources within the instructional space, such that the students would be able to understand the capabilities provided by EIRs and thereafter leverage these abilities to facilitate learning and research activities.

Also, there was a significant positive relationship between ICT skills and use of EIRs by undergraduates in federal universities in North-Central Nigeria. The implication is that undergraduates with ICT competence are properly positioned to utilise EIRs in the universities. This might be due to the fac that EIRs are electronic-related materials that are usually domiciled on the internet. Thus, any user who wishes to use these online resources should possess some level of ICT skills to access them. In this wise, there is a nexus between effective utilisation of EIRs undergraduates' ICT skills. Akufo and Budu, (2019) affirm that undergraduates with adequate technological competences have the abilities to properly utilise EIRs for learning purposes. Omosekejimi, Eghworo and Ogo (2015) stress that efficient and effective utilisation of EIRs among the undergraduate in Nigeria universities mostly depends on the possession of relevant Information Communication Technology skills as these skills would enable them to use the e-resources for their research and studying

activities.

Finding from hypothesis 3 indicates that there was a significant positive relationship between environmental factors and the use of EIRs by undergraduates in the federal universities in North-Central, Nigeria.Folorunsho and Njoku, 2016). Education system is also prone to the influence of these factors and should be given due consideration by the critical players in the field of education. The existing environmental condition could have significant impact on the access and utilisation of EIRs in the libraries and media centres across universities. The essence of environmental factors on the use of e-resources among the undergraduate towards their learning and studying cannot be underestimated (Adeoye and Elegunde, 2012). This is because successful use of e-resources could be facilitated or influenced by structured and conducive environmental conditions being provided by the institution concerned.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

Introduction

The summary of the research findings, conclusion and recommendations, implications of the study, contribution of the study to knowledge and suggestion for further studies are presented in this chapter.

5.1 Summary of the findings

1. There was a low level of accessibility to EIRs by undergraduates in the federal universities in North-Central Nigeria.
2. The major points where undergraduates accessed EIRs are lecture rooms and homes.
3. ICT skills possessed by the undergraduates in the federal universities in North-Central Nigeria were low.
4. Conducive environment, inadequate provision of computers to access and use EIRs as well as cumbersome regulations and policies are major environmental factors that limited the use of EIRs by undergraduates in federal universities in North-Central Nigeria.
5. Major EIRs available in the federal universities in North-Central Nigeria were bibliographic databases, online catalogues, magazines/newspapers, manuscripts, CD-ROMs and online reference works while e-books and e-journals were limited in supply.
6. The respondents' used EIRs mainly for finding current information, studying and complementing classroom learning.
7. The study established manuscripts, CD-ROMs, maps, online catalogues, online reference works and bibliographic databases as EIRs being used on a regular basis by the undergraduates in the federal universities in North-Central, Nigeria.
8. Unavailability of EIRs, inadequateEIRs, lack of relevance of available EIRs to respondents' needs and frequent downtime of the Internet server were found to

be the basic impediments to the use of EIRs by undergraduates in federal universities in North-Central, Nigeria.

9. Environmental factors, ICT skills and accessibility to EIRs had significant joint contributions to the use of EIRs by undergraduates in the federal universities in North-Central Nigeria, though accessibility was found to be the leading contributor while environmental factors were found to be the least contributor to the use of EIRs by the students.

10 Finally, accessibility to e- resources, ICT skills and environmental factors have positive significant correlations with the use of EIRs by undergraduates in federal universities in North-Central Nigeria.

11 There was a significant correlation that exists between accessibility to and the use of EIRs by undergraduates in the federal universities in North Central, Nigeria. This implication is that increase in the level of accessibility to electronic information resources would lead to increase in the level of the use of EIRs by undergraduates in the federal universities in North-Central, Nigeria.

12 There was a significant positive relationship between ICT skills and use of EIRs by undergraduates in federal universities in North-Central Nigeria.

13 There was a significant positive relationship between environmental factors and the use of EIRs by undergraduates in the federal universities in North-Central, Nigeria

5.2 Conclusion

Electronic resources (EIRs) have emerged as one of the most powerful formats that provide access to unlimited information for different categories of students. With the positive relationship between accessibility andutilisation of EIRs, it could be inferred that undergraduates will be able to maximally use these learning resources, if necessary facilities are made available to promote the rate of access. In the same vein, institutions are expected to orgranise capacity building to improve ICT skills of the undergraduates, with a view to promoting the use of EIRs for educational purposes.

Apparently, it had been observed that all these could be achieved in a conducive environment that removes restrictions to effective utilisation of these learning resources among undergraduates. These independent variables have been found to have significant relationship with the extent of utilisation of EIRs by the undergraduates and manament of institutions need to consider these factors in the

planning and implementation of EIRs.This will adequately guide decision-making among stakeholders in the library system and the university management as a whole.

5.3 Recommendations

The following recommendations are made, based on the findings from the study:

1. Managements of the federal universities should advance strategies to increase the provision of relevant electronic information resources, level of accessibility to EIRs and provide conducive environmental factors that will ensure regular and effective use of EIRs by undergraduates with a view to support9ng their academic and research endeavours.
2. Training and re-training programmes to improve ICT skills for undergraduates should be given greater attention by the university management. ICT skills training could take the form of a zerounit course which should be made compulsory for students to pass. Also, exposure of undergraduates to ICT facilities by giving them assignments that would encourage them to make use of ICT facilities would help in developing ICT skills of the students. Many of the skills underlying attributes of being lifelong learner are computer and information literacy skills hence, institutions with a focus on lifelong learning should make ICT skills development or acquisition a priority for all students. This if done might promote and maintain a healthy learning environment in universities.
3. Moreover, the Federal Government, through its regulatory agency such as National universities commision should provide adequate funding, policies and qualified personnel that will revise, improve and modify the core mission of university education and put in place a campus network which would allow undergraduates to have access to the Internet and to use such as EIRs access.
4. Other access points such as libraries, cyber café, and the entire university library environments should be made more available within the universities such that undergraduates can have more access point for the use of EIRs.
5. The environmental factors should be improved in North central, so that it would attract users to patronise the library.

5.4 Contributions of the study to knowledge

This study has contributed to the body of knowledge in the following ways:

1. Firstly, the study has established factors such as accessibility to electronic resources, ICT skills and conducive environmental factorsthat could predict electronic information resources preference and usage among undergraduates.
2. The study has established the joint contributions of accessibility to electronic information resources, ICT skills and environmental factors to use EIRs by undergraduates in the federal university libraries in North-Central Nigeria.
3. The relative contributions of the three independent variables revealed that accessibility to EIRs constituted a significant contributor to the use of EIRs among the undergraduates in the federal universities in North-Central Nigeria. Other independent variables, ICT skills and environmental factors also had significant contributions to the use of EIRs by the undergraduates at varying degrees.
4. Lastly, the conceptual model for this study is another contribution to knowledge which could be adopted or adapted in the provision of EIRs for learning and research purposes.

5.5 Suggestions for Further Studies

Based on the limitations to the study, the following suggestions are made for further studies:

i. Accessibility, ICT skills and environmental factors had been found to have positive relationship with the utilisation of EIRs. Therefore, this study could be replicated at other levels of education

ii. At the higher level of education, it could be necessary to investigate these variables among postgraduate students in the universities.

iii. Lastly, there could be further investigation on interaction effects of other moderator variables like age, gender and readiness on the utilisation of EIRs among the undergraduates.

5.6 Limitations of the study

The study investigated electronic resources accessibility, ICT skills and environmental factors as correlates of usage of EIRs by students in Federal

Universities in North-Central geo-political zone, Nigeria. There were constraints in the course of this study. These are:

i. The study was limited to undergraduates, excluding students from other levels of education.

ii. The study is limited to three independent variables, whereas, there could be other important variables which can affect effective utilisation of library resources

iii. Selecting universities with adequate library resources was a huge challenge to the study.

iv. Also, the study involved only conventional federal universities in North-Central region ofNigeria.

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APPENDIX 1

Electronic Resources Accessibility, ICT Skills, Environmental Factors as Correlates of Undergraduates' Utilisation of Electronic Resources in Federal Universities in North-Central, Nigeria
Library Use Questionnaire

Dear respondent, this questionnaire has been designed to elicit your response on Electronic Resources Accessibility, ICT Skills, Environmental Factors as Correlates of Undergraduates' Utilisation of Electronic Resources in Federal Universities in North-Central, Nigeria. This is purely for the purpose of collecting data for a doctoral research and information provided will be treated in strict confidentiality and used only for academic purposes.

Oshinaike, A. B.

Thanks

Section A: Demographic Information

1. **Name of Institution:** _____
2. **Age of respondent:** a. Less than 16 years [ ] b. 16 – 20 years [ ] c. 20 – 30 years [ ] d. 30 years and above [ ]
3. **Gender of respondent:** a. Male [ ] b. Female [ ]
4. **Department:** a. English [ ] b. Chemistry [ ] c. Economics [ ]
5. **Level of study**: a. 200 level [ ] b. 300 level [ ] c. 400 level [ ]
6. **How long have you been using ICT-based resources?**
   a. I do not use [ ] b. Less than 1 year [ ] c. 1-3 years [ ]
   d 4 years and above

Section B: Accessibility to e-resources by students

7. Which of these e-resources are accessible for your use in your institution and to what extent? (Please tick as many option as applicable)

e-Resources	Very easily accessible	Easily Accessible	Occasionally accessible	Not accessible
e-Databases				
Online catalogue				
e-Books				
e-Journals				
Full text articles				
Online reference works				
CD-ROMs				
Manuscripts				
Maps				
e-Magazines/Newspapers				
e-Theses				
Research reports				
Bibliographic databases				

8. Where do you access e-resources for use?

e-Resources	Strongly Agree	Agree	Disagree	Strongly Disagree
Lecture rooms				
University's library				
Hostel room				
Cybercafe				
At home				
ICT centre				

Other, please specify.....

(Adapted from Thanuskodi, 2012; 2013)

Section C: Students ICT Skills (SIS)

9. Please indicate the extent to which you agree or disagree with the following statement on ICT Skills

	Items	Strongly Agree	Agree	Disagree	Strongly Disagree
1	**Computer Management Skills** I can locate and run a programme (software application) on computer				
2.	I can use CD-ROM-based software				
3	I can use cloud based software e.g. drop box, e-mail				
4	I am able to organise electronic files into folders				
5	I can search for files on the computer system				
6	I can backup files onto various media types (CD-RW, USB, Hard drive etc)				
7	I can connect computer and its peripherals (mouse, keyboard, monitor, iPad etc.)				
8	**Computer Application Skills** I can use simple editing programme e.g. bold, italics, font size etc				
9	I can import text and images into a word processed document				
10	I can insert tables in a document				
11	I have the skill to alter the layout and positioning of text and images				
12	I can create new document templates				
13	I can divide page layout into columns				
14	I am able to input data in rows and columns				
15	I can sort data				
16	I can input and use formula for solving problems				
17	I am able to produce charts and graphs for data analysis				
18	I can print a selected area				
19	I can create a basic presentation package				

20	I have the skill to modify colours of text, background and lines				
21	I can change slide timings and presentation options				
22	I can produce appropriate handout formats				
23	**Internet Use and Search Skills** I can access an Internet site via its website address				
24	I can use search engines to find information				
25	I can save/use bookmarks/favourites for marking sites				
26	I can download files from the internet				
27	I can save text and images from web pages				
28	I can create a distribution list of contacts				
29	I can sort messages and file in created folders				
30	I am knowledgeable in the use of database				
31	I have skill to work in an interactive platforms such as video conferencing, Chart room, list serve et cetera				
32	I can formulate search queries				
33	I am skilled in the use of e-library tools e.g. CD-ROM. OPAC, subject gateways et cetera				
34	I know how to work in a networked environments				
35	I am conversant with e-Journals				
36	I have the knowledge on the determination of appropriate search term				
37	I am knowledgeable in accessing database structure using different search engines				
38	I am skilful in the use of search engines				
39	I can use Boolean logic searching technique				

(Adapted from Buabeng-Andoh, 2012)

Section D: Environmental factors affecting e-resources' use

10. Please indicate your opinion on these statements on environmental factors determining e-resources use

Statement	Strongly Agree	Agree	Disagree	Strongly Agree
Learning Environment There is reliable Internet connection for accessing and using e-resources in my institution				
There are adequate policies for e-resources use in my Institution				
I cannot use e-resources in my institutionbecause it the environment is not conducive				
There are adequate rules and regulations governing the use of e-resources in my Institution				
The rules and regulations governing the use of e-resources in my Institution is too hard and cumbersome for effective use of e-resources by the students				
There are policies to support e-resources use for academic work in my institution				
The computers provided in the ICT centre for e-resources access and use are enough				
The computers provided in the university library for e-resources access and use are enough				
There is adequate administrative and technical support for e-resources use by students				
There is adequate availability of computers connected to the internet for e-resources access and use				
There is adequate training for students on how to use the e-resources				
Interaction with colleagues enabled me to use e-resources effectively				
Physical Infrastructure The environment in the ICT centre is conducive				
There is adequate infrastructural facilities to support e-resources use				
The environment in the library is conducive				
The burden of my academic work does not allow me to make use of the e-resources				
There are inadequate access points for-resources use in my Institution				

The cost of using e-resources in my Institution is too high				
There are adequate computer accessories and resource (e.g printers, scanners etc) to support -resources use in my Institution				
There is adequate provision of steady power supply in my Institution				
The connectivity to the Internet in my institution is reliable				

(Adapted from Ajayi and Aramide, 2012)

Section E: Use of e-resources

11. Which of these e-resources do you use?

e-Resources	Strongly Agree	Agree	Disagree	Strongly Agree
e-Databases				
Online catalogue				
e-Books				
e-Journals				
Full text articles				
Online reference works				
CD-ROMs				
e-Manuscripts				
e-Maps				
e-Magazines/Newspapers				
e-Theses				
Research reports				
Bibliographic databases				

Other, please specify.....

(Adapted from Thanuskodi, 2013)

12. Please indicate the purpose(s) for which you use e-resources

I use e-resources for:

Purpose of use	Strongly Agree	Agree	Disagree	Strongly Agree
Course work				
Studying				
Writing theses and project				
Writing research/funding proposal				
Reference checking				
Writing article for publication				
Cooperating and collaborating with colleagues				
Learning				
Finding current information				
Complementing classroom learning				
Updating knowledge				
Entertainment				
Collaborative learning				
Literature search				

Other, please specify.....

(Adapted from Singh, 2012; Thanuskodi, 2013)

13. Please indicate the response option that best describes your extent of use of e-resources

Statement	Daily	Twice-a-week	Fortnightly	Monthly	I cannot say	Never use
e-Databases						
. Online catalogue						
e-Books						
e-Journals						
Full text articles						
Online reference works						
CD-ROMs						
Manuscripts						
Maps						
e-Magazines/News papers						
e-Theses						
Research reports						
Bibliographic databases						

Other, please specify.....

Section F: Constraints to effective use e-resources by students

14. Which of these factors hinder your effective use of e-resources and to what extent?

Statement	Great Extent	Moderate Extent	Little Extent	No Extent
Limited access to computer terminals				
Lack of ICT skills to effectively access e-resources				
Uncooperative staff to facilitate easy access				
Distraction from doing other work				
High cost of accessing e-resources				
Lack of awareness about e-resources				
Unfriendly user-interface				
Inadequate e-resources				
Network problem				
Lack of required search skills				
Time consumption				
Lack of access to e-resources				
Financial incapability				
Technophobia (fear of ICT facilities)				
Lack of conducive environment				
Lack of support from IT staff in my institution				
Lack of time to use				
E-resources not available in library				
Not many e-resources available in my subject area				
Coverage on e-resources is not suited to my research area				
No assistance provided by the information professionals				
Lack of training on e-resources usage				
Frequent downtime of server				

EIRs Observation Checklist

S/N		UNILORIN	UNIABUJA	UNIJOS	UNILOK	UNILAT
1.	Availability of EIRs in the Library	C	C	C	A	C
2.	Accessibility to EIRs in the Library	C	D	C	A	D
3.	Availability of finding aids in the section	A	C	D	C	C
4.	Availability of reading areas in the Section	C	A	C	C	C
5.	Availability of reading tables in the EIRs section	C	C	A	C	C
6.	Availability of reading chairs for users	C	C	C	C	D
7.	Accessibility to reading and tables for users	C	C	D	C	C
8.	Availability of lighting in the Section	C	C	D	D	C
9.	Availability of air conditioners in the Section	C	C	D	D	C
10.	Availability of display in the Section	D	C	A	C	C
11.	Attitude of staff to EIRs users	C	C	C	C	C

Key: E = Poor; D = Fair; C= Credit; B = Good; A= Excellent.