

**COMPUTER SKILLS OF LECTURERS, INSTITUTIONAL FACTORS,
USEFULNESS AND USABILITY AS PREDICTORS OF LECTURERS'
UTILISATION OF SCHOLARLY ELECTRONIC PUBLICATIONS IN
FEDERAL UNIVERSITIES IN NIGERIA**

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ABSTRACT

Developments in information and communication technology have resulted in the transformation of scholarly publications from paper to electronic medium. Previous studies have revealed that there was low level of utilisation of scholarly electronic publications (SEP) by lecturers in universities in Nigeria. Studies have also revealed that lecturers' computer skills, institutional factors (ICT infrastructure, academic workload, immediate work environment and staff training) usefulness (relevance) and usability (ease of use of SEP) are some of the factors that influenced utilisation of SEP among university lecturers in developed countries but not of those in developing countries like Nigeria. The study, therefore, investigated the combined effect of computer skills of lecturers, institutional factors, usefulness and usability on lecturers' utilisation of scholarly electronic publications in federal universities in Nigeria.

The descriptive survey research design was used in the study. From a population of 6,168, a sample of 2,004 was drawn using accidental sampling technique. Data were collected through five questionnaires (computer skills of lecturers ($r = 0.95$); Institutional Factors ($r = 0.79$); usefulness ($r = 0.85$); usability ($r = 0.93$) and utilisation ($r = 0.91$)). This was complemented with observation checklist and interview schedule conducted on twenty-four lecturers in six universities. Seven research questions were answered and five hypotheses tested at 0.05 level of significance. Data were analysed with descriptive statistics, Pearson product moment correlation and multiple regression. The qualitative data were subjected to content analysis.

Computer skills of lecturers ($r = -.187$, $p < 0.05$), Institutional factors ($r = .06$, $p < .05$) and usability correlated significantly with utilisation of SEP among lecturers while usefulness did not correlate significantly with utilisation of SEP. The combined effect of the independent variables determined utilization of SEP by lecturers in federal universities in Nigeria ($F_{(4,139)} = 22.865$; $R = .248$, $p < 0.05$). Three independent variables made significant contributions namely, computer skills ($\beta = .246$, $p < 0.05$), institutional factors ($\beta = 0.79$, $p < 0.05$) and usability ($\beta = .144$, $p < 0.05$). Interview and observations revealed that lecturers possessed computer skills. It was observed that institutional factors such as ICT infrastructure and staff training were in place for lecturers to use SEP. The contents of SEP were useful for lecturers' researches and there was high level of usability. In addition, low level of utilisation of SEP was reported by lecturers.

Computer skills of lecturers, institutional factors and usability combined are determinants of lecturers' utilisation of scholarly electronic publications in federal university libraries in Nigeria. Consequently, university managers should facilitate acquisition of relevant computer skills by lecturers. Also improvement in institutional factors and usability will lead to increased utilisation of scholarly electronic publications among lecturers.

Keywords: E-journals utilisation, Nigerian universities, Computer skills, Ease of use of scholarly electronic publications, Lecturers, Libraries

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DEDICATION

This thesis is dedicated to my family.

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CERTIFICATION

I certify that this work was carried out in the Department of Library, Archival and Information Studies, University of Ibadan, by Monday Obaidjevwe Ogbomo under my supervision.

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CHAPTER ONE

INTRODUCITON

1.1 Background to the Study

Innovation in information and communication technologies (ICT) such as computers, Internet and scholarly electronic publications (e-journals) have made it almost unnecessary for lecturers and researchers to use card catalogues, printed abstracts and indexes, bibliographies, textbooks, printed journals and so on. University lecturers all over the world can conduct research, teach and accomplish other academic tasks at present by using computers connected to the Internet to search and retrieve needed information from electronic catalogues, e-journals and large databases of digitised scholarly information (Marcum & George, 2003). The transformation of scholarly publications from paper to electronic medium is the anticipated reward for the human capital and huge sums of financial resources expended on the development of information and communication technologies across the globe. Consequent upon the change from paper to electronic format, lecturers are expected to develop new skills required to exploit information in electronic resources.

The relationship between research and scholarly electronic publications is symbiotic and interactive in nature because research outputs are communicated in the form of scholarly electronic publications while scholarly publications form one of the basic input resources for research activity. It has been observed that:

Scientific research is the mainstay of scientific communication. Scientific communication thrives on a rich environment of scientific research. Scientific communication

cannot flourish in an environment that challenges its benefactor (scientific research) and the two are intricately intertwined (Teferra, 2003:31).

Scientific communication requires worldwide dissemination. Therefore, the Internet becomes an important infrastructure for the dissemination of research output. It could be used for communication of everything in scholarship, from announcing conferences, distributing calls for papers, and publicizing preliminary conference programmes and table of contents, to researching, pre-printing, and publishing scholarly works. Organizations, individuals, and lecturers frequently subscribe to electronic journals, and make use of World Wide Web (WWW) to retrieve current literature (publications), news, and to conduct research. Malenfant (2012:1) noted that “New technology such as the Internet offers proven opportunity for enhancing the sharing of scholarly information – research papers, primary data and other evidence, creative activity and other products of research and scholarship across institutions and audiences.”

Scholarly publications are the primary means by which the outcome of academic work is shared. Journal articles, books, conference proceedings, and the likes have been the primary delivery vehicles for scholarly work. Electronic forms of scholarly publications abound and are on the increase. Tenopir and King (2001) noted that “nearly two-thirds of all scientific journals are available both electronically and in print and there are more than 1,000 electronic-only peer-reviewed journals.” Lund University (2010), in her directory of open access journals listed 7,000 peer-reviewed electronic-only journals. Scholarly publications form the vehicle upon which information, knowledge, research, and ideas are generated, transmitted, shared, disseminated and used. Lecturers use varied forms of scholarly electronic publications in formal and informal settings to communicate

with one another in the same discipline as well as with others beyond their disciplines and institution (Teferra, 2003).

Pertinent to the benefits of scholarly electronic publications is the establishment of reliable scholarly electronic publications infrastructure-ICT and Internet connectivity that will enable lecturers have uninterrupted access to up-to-date data and information sources that are created both internationally and nationally. With the development of scholarly electronic communication facilities in Nigerian federal universities, lecturers conducting research be stimulated to use the facilities to advance knowledge creation, communication, utilisation, and dissemination. This may improve Nigeria and Africa's contribution to the content of world knowledge. However, there are challenges to utilisation of scholarly electronic publications. In Nigeria, studies such as Ajuwon (2003) and Ureigho, Oroke and Ekruyota (2006) found that "access to and use of Internet resources is low in Nigeria." Supporting this assertion Olalude (2007) posited that:

Authors in countries, such as Botswana, South Africa, and to some extent, Tanzania and Kenya appear to use Internet facilities as research tools while writing academic publications more than authors from Nigeria, Ghana, Zambia, Uganda, Mozambique and Swaziland.

Although ICT facilitates the pace and quality of scholarly research, its deployment and use is predicted on a number of antecedents. These antecedents are the contingents of the university in which the researchers carry out their work, the researchers themselves, and information sources like scholarly electronic publications.

The Nigerian government through the National Universities Commission (NUC), nongovernmental organizations (NGOs), foreign donors, and the private sector has introduced ICT in libraries in federal universities in Nigeria. The initiative could boost

Internet access to the content of relevant national and international scholarly electronic publications to support and enhance research activities. Complimenting the effort of Nigerian government and to reposition them in the current ICT driven information age individual federal universities management took the initiative to computerize their libraries with a view to create effective access to digitised databases. The universities established ICT centers to provide scholarly electronic publications to lecturers, students and non-academic staff for capacity building, improve research, teaching, learning and scholarly communication.

Researches indicate that there are cognitive and technical factors that do affect ICT use by scholars. The possession of computer skills like word processing and internet search are vital to scholarship. Computer skill may be a factor that influences lecturers' utilisation of scholarly electronic publications for research purpose. Information and communication technologies (ICTs) have resulted in a need for learning new skills, abilities, and capabilities/competences to effectively and efficiently handle job related tasks in electronic environment. Knowledge, skill and competence with computer technology are now vital assets for all employees in institutions and organisations (Zin, Zaman, Judi, Mukti, Amin, Sahran, Ahmad, Ayob, Abdulla, & Abdullah, 2000). For instance a study of faculty's use of electronic resources found that use was influenced by such factors as computing skills of lecturers (Waldman, 2003). Emmanuel and Sife (2008:137) observed "in higher education, ICTs (computer hardware and software, internet and network system) have great influence in teaching, learning, research and other scholarly and professional activities through improved communication and access to information." However, inadequate computer skills have been pointed out as one of the causes of underutilisation of scholarly electronic publications in many African libraries (Agaba, 2005). It should be

noted that computer skills can often be considered a necessary condition for utilisation of scholarly electronic publications. This is justified by the fact that scholarly electronic publications are in digitised format and computer hardware and software are the main ICT infrastructure needed for the creation and use of digital information. James (2011: 94) observed “it is entirely possible, for example, for a highly educated person (lecturer) to have poor Internet skills if he or she graduated a long time ago.” Furthermore, he noted “lack of skills was the mostly commonly cited reason for non-usage of Internet.” Observation has revealed that some older lecturers and even some younger ones do not have adequate ICT skills required to deploy scholarly electronic publications for research. To underestimate computer skills means underutilisation of scholarly electronic publications. Therefore, computer skills are necessary requirement for the utilisation of Internet resources such as scholarly electronic publications.

Institutional factors may influence lecturers’ utilisation of scholarly electronic publications. These, are conditions such as institutional information and communication technology infrastructure, workplace environment, workload, proximity to library and ICT laboratory, cost of access, use policy, and training in a university environment. Rogers (1983) identified among other factors organizational characteristics as principal factors influencing diffusion of an innovation. Peansupap and Walker (2005) also demonstrated in their study that workplace environment characteristics such as commitment, open discussion, and immediate learning environment also affect ICT adoption, and utilisation. Consequently, institutional factors prevailing in a particular university’s environment may influence lecturers’ utilisation of scholar electronic publications for research. According to Emmanuel and Sife (2008)

Libraries require sufficient funds to acquire modern ICT facilities such as computers, servers, scanners, photocopiers, software as well as paying for online and offline services such as e-journals and digitized libraries... On the contrary, experience reveal that most university libraries in Africa and other developing countries get very little funds from their parent institutions and the government for support of their activities (P.138).

In Nigeria, academic libraries are underfunded and as such have not been able to achieve the strategic function of facilitating Internet access to scholarly electronic publications to the universities communities. Lamenting the sorry state of funding of academic libraries, Akintunde (2006) noted: “funding by government which has been the sponsor of 75 per cent of the libraries has been dwindling and quite unreliable in the last few years”. The pathetic financial situation of federal universities (academic libraries being part) in Nigeria attracted the attention of *The Guardian* (25th May 2007:4), which in its editorial comment noted:

Numerous problems beset Nigerian universities. Inadequate funding, lack of commitment, poor or unavailable infrastructure, epileptic power supply ... Recognizing the strategic role of education in national development, UNESCO prescribed that about 26 percent of a nation’s budget should be reserved for education. No Nigerian government ever considered this advice useful.

The functioning and utilisation of scholarly electronic publications rely heavily on electricity supply. Frequent power cut has been a constant problem in federal universities in Nigeria. This may influence among other things, management and utilisation of facilities and services like scholarly electronic publications.

The scenario above is a pointer to the fact that institutional factors influence the provision of ICT infrastructure like computers, printers and acquisition of scholarly electronic publications and may cause underutilisation of electronic information resources.

Another variable that may relate to lecturers' utilisation of scholarly electronic resources for research is usefulness. The quality of information contained in scholarly electronic publication must be useful i.e. relevant to lecturers research tasks. For this reason, Tsakonas and Papatheodorou (2006:402) defined usefulness as "the degree to which a specific information item will serve the information needs of the user." This implies the suitability of document content to research topic. It is the perceived cognitive and pragmatic impact of the content of a document in relation to the user's problem at hand (Xu & Chen 2006: 962). The subject content of a text is the major factor underlying the usefulness of that text to a user's context.

Usability is an important concept that is closely related to usefulness of the content of a document. It means the interaction a user has with the information systems. Tsakonas and Papatheodorou noted that "usability is concerned with the ease of use of a given system in an efficient, effective and satisfactory way." A user-friendly system is considered a usable system because it enables easy flow of data/information between the user and the system features. Ease of use of scholarly electronic publications permits users to conclude their information tasks and consequently their work tasks successfully. Systems that are easy to use minimize the time and effort users spend.

If technology supports an innovation, then inevitably that innovation would see speedy adoption (Hurd, 2000:1280). However, it would appear that there is a common belief that the effective and efficient deployment of scholarly electronic publications will improve lecturer's teaching capability and the capacity to conduct research as well as create new research opportunities. This belief may not be tenable in all cases and in all geographical and technological divides in the world. Hence, understanding the factors that

influence their use becomes imperative in order to ensure maximum utilisation in a developing nation like Nigeria. Certainly, digital technologies require new values, attitudes, and a pattern of behaviour to access information in electronic environment. Therefore, “there is a great need to measure the extent to which users are utilizing such resources and services” (Atilgan & Bayram, 2006:1).

Furthermore, as stated by Gudmundsottir (2005: 2), “access to scholarly electronic publications does not imply usage.” It is because of this, that studies have increasingly moved from focusing on the material (physical) access to the skills and opportunities that a scholar has to possess to use ICT. Just like having access to books does not mean that one can read them not to mention use their content to achieve desired result. The same can be seen as relevant for scholarly electronic publications. However, an understanding of the level of skills lecturers possess to utilize scholarly electronic publications becomes desirable to enable planning for skills acquisition. Beyond the issue of access to ICT for research, extant literature has shown that institutional factors, individual researcher and inherent ICT associated factors could be at play in the scholarly publishing and utilisation of ICT. These factors could exert tremendous influence on the satisfactory deployment of ICT with regards to scholarly research.

1.2 Statement of the problem

Over the last few years, enormous progress has been made in ensuring that lecturers in federal universities in Nigeria could access the expanding volume of scholarly publications produced in electronic format. Support has been provided in acquisition of relevant hardware and software and setting up the necessary networked infrastructure. Negotiation with publishers has resulted in scholarly electronic publications being made

available either free or at heavily discounted prices through programmes like AGORA, HINARI, EBSCOHOST, JSTOR, and PERI. These initiatives are a recent development in Nigeria's university system.

However, the development seems to pose serious challenges of maximising beneficial use of scholarly electronic publications in Nigeria. Experts had observed that the use of scholarly electronic publications by lecturers is low in federal universities in Nigeria. Studies have also revealed that computer skills of lecturers, institutional factors, usefulness and usability are some of the factors that influence utilisation of university lecturers in developed countries but not of those in developing countries like Nigeria.

These problems call for an empirical study to analyse the situation for an in-depth understanding and appropriate measures taken to improve utilisation of scholarly electronic publications in federal university libraries. Consequently, this study investigated the combined influence of computer skills of lecturers, institutional factors, and usability on lecturers' utilisation of scholarly electronic publications in federal universities in Nigeria.

1.3 Objectives of the study

The main objective of this study was to investigate the combined influence of computer skills of lecturers; institutional factors, usefulness and usability on utilization of scholarly electronic publications among lecturers in federal universities in Nigeria. The specific objectives of the study were to:

- (I) identify scholarly electronic publications available in libraries of federal universities in Nigeria;

- (II) find out the computer skills of lecturers in federal universities in Nigeria
- (III) investigate the institutional factors prevailing in federal universities that encouraged lecturers' utilisation of scholarly electronic publications
- (IV) determine the level of usefulness of scholarly electronic publications to lecturers
- (V) determine the level of usability (ease of use) of scholarly electronic publications to lecturers
- (VI) find out the frequency of utilisation of scholarly electronic publications among lecturers
- (VII) determine the combined influence computer skills of lecturers, institutional factors, usefulness and usability on lecturers' utilisation of scholarly electronic publications;
- (VIII) determine the relative contribution of computer skills of lecturers, institutional factors, usefulness and usability to lecturer' utilisation of scholarly electronic publications.

1.4 Variables of the Study

The research proposes that some independent variables such as computer skill of lecturers, institutional factors and usability may influence utilisation of SEP among lecturers in Federal Universities in Nigeria. These variables are:

Independent Variables: Computer skills of lecturers, institutional factors, usefulness and usability.

Dependent Variable: Utilization of SEP.

1.5 Research questions

The following research questions guided the study:

- (i) What are the varieties of scholarly electronic publications available in Nigerian federal universities libraries that lecturers can utilize for research?
- (ii) What are the computer skills of lecturers in federal universities in Nigeria?
- (iii) What are the institutional factors that encourage lecturers' utilisation of scholarly electronic publications in federal universities in Nigeria?
- (iv) What is the level of usefulness of scholarly electronic publications to lecturers in federal universities in Nigeria?
- (v) What is the level of usability (ease of use) of scholarly electronic publications used by lecturers in federal universities in Nigeria?
- (vi) To what extent do lecturers in federal universities in Nigeria utilize scholarly electronic publications?
- (vii) What is the relative contribution of computer skills of lecturers, institutional factors, usefulness and usability to lecturer' utilisation of scholarly electronic publications for research in federal universities in Nigeria?

1.6 Hypotheses

The following null hypotheses were tested in the study at 0.05 level of significance.

- (i) There is no significant relationship between computer skills of lecturers and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.
- (ii) There is no significant relationship between institutional factors and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.

- (iii) There is no significant relationship between usefulness and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.
- (iv) There is no significant relationship between usability (ease of use) and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.
- (v) Computer skills of lecturers, institutional factors, usefulness, and usability will not significantly predict utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.

1.7 Scope of the Study

This study covered all lecturers in six federal universities in Nigeria. The universities are: Ahmadu Bello University, Zaria, Bayero University, Kano, Obafemi Awolowo University, Ile-Ife, University of Ibadan, Ibadan, University of Jos, Jos, and University of Port Harcourt, Port Harcourt. They were selected for the study because they are the recipients of external donors (MacArthur/Carnegie Foundation) support to develop ICT initiatives in their university libraries. Scholarly electronic publications included in the study are: e-journals, e-books, e-conference proceedings, e-bibliographies, e-abstracts and indexes, e-databases and e-archives which are accessible through the Internet. Research is the only aspect of lecturers' functions covered. Variables covered are: computer skills; institutional factors; usefulness; usability and utilisation of scholarly electronic publications.

1.8 Significance of the Study

The findings of this study would be significant in the following ways:

University administrator would find the finding that the combined influence of computer skills of lecturers, institutional factors and usability determined lecturers' utilization of SEP as useful information during review of the university's policy on ICT adoption and utilization. The finding could be used as an input to guide university administrators to fine-tune the university's policy on ICT skills acquisition, standards on lecturers' workload, work environment and provision of electricity in federal universities in Nigeria. With appropriate ICT policies reviewed and implemented, there may be increased level of utilization of SEP among lecturers.

To the university librarians, the finding of the study may act as an empirical evidence for them to support their suggestion to university administrators on the need to facilitate ICT skill acquisition among lecturers. It will also support librarians request for provision of ICT infrastructure such as laptops, server, wireless internet connectivity and uninterruptible electricity supply.

Funding agencies such as governments, external donors and individuals would be motivated by the finding to continue with their support to federal university librarians. The study has shown that the combined influence of computer skills of lecturers, institutional factors and usability determined utilization of SEP. Therefore, to improve on utilization of SEP among lecturers, funding bodies could extend their assistance to include computer skill acquisition among lecturers, support university librarians in the provision of generator and influence publishers to produce user-friendly SEP.

The study revealed that usability (Ease-of-use) is a determinant of utilization of SEP among lecturers. This information may be useful to publishers of SEP because it will assist them in the process of evaluating their products in order to improve on their service. In this regard, lecturers' interaction with SEP would be free from difficulty and consequently, encourage increased level of utilization of SEP.

Researchers and other scholars who are interested in predictors of scholarly electronic publications would find the result of the study useful because it would provide relevant background information to their study.

1.9 Operational Definition of Terms

The following terms were defined in the context in which they are used in this study:

Computer skills: - The ability possessed by lecturers to use the computer in an Internet environment.

Electronic Publications: - Books, journal articles and other scholarly information resources in digital format usually available online via the Internet for consultation by lecturers.

Information and Communication Technology: Any device or application that stores, retrieves, manipulates, transmits or receives information electronically in a digital form. Examples are computers, laptops, software, cellular phones, Internet and satellite system.

Institutional factors: - The range of conditions in a university that could influence lecturers' utilisation of scholarly electronic publications such as management commitment,

workload, use policy, academic culture, workplace environment, social network, cost of access, electricity supply and staff training.

Scholarly electronic publications: Any product of scholarship created, peer reviewed, produced, distributed, disseminated, retrieved and used on the Internet by lecturers. Examples are online journals, databases and e-books.

Usability of scholarly electronic publications: - The ease with which scholarly electronic publications interface can be efficiently operated by lecturers.

Usefulness of scholarly electronic publications: the degree to which a specific scholarly electronic publication will serve the information needs of a lecturer.

Utilisation of scholarly electronic publications: - The application/use of scholarly electronic publications for report writing publishing books and articles and collaboration among colleagues by lecturers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The aim of this chapter was to provide background information and justification for the study on computer skills of lecturers, institutional factors, usefulness, usability and utilisation of scholarly electronic publications among lecturers in universities in Nigeria. This would increase the researcher's understanding and sharpen his focus on the topic. Furthermore, the review would provide useful background information to aid readers' understanding and appreciation of the work. The review of related literature is organized under the following subheadings:

2.2 Scholars research needs and advancement of scholarship in the universities

2.3 Research and utilisation of scholarly electronic publications in developing nations

2.4 Global trends in scholarly electronic publications development and deployment for research

2.5 Computer skills of lecturers and utilisation of scholarly electronic publications in the higher institutions

2.6 The influence of institutional factors on utilisation of scholarly electronic publications

2.7 Usefulness of scholarly electronic publications and information utilisation

2.8 Usability of scholarly electronic publications and information utilisation for research

2.9 Appraisal of literature review

2.10 Theoretical framework

2.11 Conceptual framework

2.2 Scholars research needs and advancement of scholarship in the universities.

The functions of a university as an institution of higher learning are: teaching; learning; research and community service. Hence, the National Policy on Education, as cited by Arubaye (2003) stated that “the objectives of tertiary educational institutions in Nigeria are: teaching; research and development, and generation and dissemination of knowledge”. The research function is central to the other functions of institutions of higher learning. To achieve these functions, academics in universities perform three main responsibilities: educate the next generation of professionals, managers and leaders: make formal knowledge available to society at large, thereby stimulating the development of new products and services, necessitating discussion on public issues, and improving understanding of our culture: and develop new knowledge (Getz 1997). Scholars focus more on research activity because it impacts not only on quality of teaching and learning but also improves community service and expands the frontier of knowledge in all fields of study. In addition, scholars focus on research because its dissemination in scholarly journals earns them advancement, appointment, promotion and tenure (Colin & Berge, 1994; Cronin & Overfelt, 1995; Arubaye, 2003; and Adebayo, 2005). Laying further credence to the research interest of lecturers Bostock (2001) noted that “there is generally no payment for publication in an academic print (electronic) journal but the paid benefits that follow such publication can be enormous as appointment, promotion, and research grant funding.” In other words the printed (electronic) journal is a very powerful gatekeeper of entry into economic academia. Therefore, the scholar (lecturer) is first and

foremost a researcher (and) research is the evidence of scholar productivity (Adebayo 2005:11).

The notion of research entails the following: free inquiry, painstaking search for the truth no matter where it leads, un-filtered intellectual engagement aimed at expanding the frontier of knowledge, unbiased recording and interpretation of events with a view to unveiling new facts or trends and knowledge mining of systems in the universe (Falase, 2005). Furthermore, Falase noted “research occupies a strategic position as it is more important in wealth creation than the mere possession of raw materials because the key to sustainable socio-economic development comprises knowledge creation, processing, packaging and dissemination.” Research according to Landau, Ramson, Schwartz, Davidson, Seaton, and Tebbit (1990) is a “careful search”: “systematic investigation towards increasing the sum of knowledge.” Research is conducted in order to create awareness and to contribute to the body of knowledge in the particular field of study. It seeks to understand given situations like natural or social phenomena through observation or experimentation and to explain them for the benefit of mankind.

According to Olayinka, Agbaje, Alonge, Ekpenyong, Gbadegesin, Isiugo-Abanihe, Oriaku, Raji-Oyelade, and Taiwo (2004) the process involved in conducting a research, will among others typically include the following: adequate design and conceptual framework: adequate knowledge of work carried out by other workers on the same topic: competence in the execution: data collection may involve bench work: use of questionnaires (instruments) clinical test, etc: analysis of data follows and this may require computer modeling, use of commercial available software package, statistical analysis, etc and interpretation of the result. . Complementing the above research process is documentation,

also referred to as production of report or writing research report (Tuckman, 1999). The report helps to disseminate knowledge, creates awareness and use of idea and ensures preservation of knowledge for further research.

2.3 Research and utilisation of scholarly electronic publications in developing nations.

The broad purpose of conducting research is to add to human store of knowledge. The value of good scientific research lies in the knowledge gained. Science is a public endeavour and the value of research is very limited if only the researcher is aware of the research effort and the results obtained. Others must know it so dissemination of the knowledge is a vital part of the research process (Furlong, Lovelace & Lovelace 2000). The results of any systematic investigation carried out by researchers would have to be communicated to some intended audience in order to be of much value. The final step after conducting a research project entails production of report to facilitate its communication potentialities. The channels of disseminating research report may be in the form of a thesis, monograph or an article in journal (Olayinka, et al. 2004). Corroborating the above assertion CARL (2005) opined “The publication of research in journals, monographs and technical reports continues to be a major channel for the dissemination of research results.” Research analysis in all scientific fields is communicated through a complex network of journals, databases and publishers. These networks not only communicate but they also make knowledge legitimate by placing it in accepted formats and permitting wide access to it (Altbach 1994). Research findings are communicated through the respected journals in the various disciplines. These research journals (Learned journals, academic journals, refereed/ peer –reviewed journals) constitute the basic building blocks of the field, though information and communication technologies is currently transforming the knowledge

dissemination system and by implication the research journals. Scholarly journals are the main means of communicating knowledge in virtually all academic fields and thus are central to the scholarly communication (scholarly publishing) system (Altbach 1994).

Several studies such as Abels, Liebscher and Denman (1996), Ehikhamenor (2003a) and (2003b); Tenopir (2003); Peansupapa and Walker (2005); and Popoola(2008) have shown the relationship between research and utilisation of scholarly electronic publications. Popoola (2008) in a study of the use of information sources and services and its effect on the research output of social scientist in Nigerian universities found that the use of information sources or services will improve the research output of the respondents (social scientists in Nigerian universities) and if information's resources and services available in their institutional information system or elsewhere are used their research output is more significantly enhanced. In the same study Popoola (2008) found that electronic information resources services such as Internet, E-mail and CD-ROM search were not popular among social scientist. This does not imply that social scientists do not use electronic information resources but when compared to other information resources available to them their rate of use of electronic information resources was low. The reason according to Preschel and Woods in Popoola (2008) is "that the academic social sciences are not in the leading edge of information technology for reasons such as cost, interdisciplinary structure, imprecise terminology in the subject areas, and possibly a lack of return on investment".

2.4 Global trends in scholarly electronic publications development and deployment for research

Scholarly activities like research- create a need to spread and share information about the results, methods, new process and product. The findings of research investigations are shared evaluated and used by colleagues, students and generations to come (Fjallbrant 1997). Therefore there is the need to communicate and conserve the findings of research locally and internationally hence the concept of scholarly publication. Although the concept “scholarly publishing” is frequently used in the literature there is no single agreed-upon definition. In some cases, the scope of scholarly publishing is narrowly defined to include exclusively the peer-reviewed literature published upon completion of research (Rowlands, Nicholas & Huntington in CARL 2005). Others broaden the scope of scholarly publishing to include all forms of communication between researchers “creating new knowledge is not enough: even to serve as an open ended investment knowledge must be communicated ultimately to the next generation but in the first instance to one’s fellow researchers, to one’s peers so they can apply, test and build upon it” (Harnad, 1996). Still, others view scholarly publishing as a much more inclusive process that represent all forms of disseminations of research output. Also it is pertinent to understand that scholarly publishing is an iterative process in which scholarship is communicated, used and developed within a community (King & Mckim, 1999). Therefore, scholarly publishing may be defined as any end product of scholarship- would include but not limited to journal articles that report original empirical research, review papers and opinion papers, monographs, multi-contributor editions, software and databases.

A potent means of scholarly publishing is the scholarly journal. The scholarly journal has served as the primary medium of scholarly communication among scientists

and researchers for more than three centuries and has remained essentially unchanged in form and functions over time. However, despite scholarly journal benefits to science and scholarship, the paper journal system has been subjected to criticisms such as rapid increase in cost, restricted access, eroding standard of peer- review and archiving (Harder, 1996; Boyd & Herkovic 1999; Luswick & Glazor, 2000). The paper journal bedeviled by the above crisis and coupled with the influence of modern information and communication technologies (ICT) led to the transformation from print to electronic scholarly publishing.

Scholarly electronic publications (here after referred to as S.E.P.) commonly refers to all forms of online distribution of documents (King & Mekin, 1999; Borgman, 2000; Zhao & Resh 2001; and Ludwick, 2000). This is an encompassing term for a variety of digitally produced information materials such as bulletin boards, newsgroups, mailing lists; CD-ROM based media, databases and websites (Ludwick & Glazer 2000). However, an important distinction to note is that not all electronic publications are scholarly. Rather some electronic publications include opinions, views, discussions and other types of information that do not meet the criteria of scholarship. Scholarship in its broadest sense implies that certain criteria have been met, goals are clearly stated: background preparation is sufficient, approach to issue/topic is appropriate, important conclusion is made, presentation of material is effective and that the project is thoughtfully evaluated (Ludwick & Glazer 2000). A vehicle of scholarly communication that meets the qualities of scholarship is the scholarly journal/academic journal. Hence, Jones and Cook (2000) defined scholarly electronic publishing simply as “an e-journal is a digitised periodical that publishes on the Internet or worldwide web (www)”. Also a digitised journal could be in other storage media such as CD-ROM, DVD, flash drives and that could be uploaded in the internet for use. Stranack (2006) noted “electronic publishing (or online publishing or

e-publishing, etc.) involves placing information about your journal on the Internet to share with wider world” (p.14).

This definition of scholarly electronic publishing is supported by the views of many authorities such as CARL (2005), Fjallbrant (1997) and Stanack (2006) who observed that “academic journals (also known as peer-reviewed journals) are the main vehicles for disseminating research findings in the scholarly community and therefore regarded as the most important type of primary publications for the spread of scientific information to enhance visibility on a global scale”. Therefore, scholarly electronic journals may not be all that different from the print journals in the fundamental editorial processes. That is, articles are submitted by the authors in the academic community, and are peer-reviewed (to ensure quality control) by the editorial board members of the e-journal to be accepted or rejected and subsequently published. It is the digital medium of presentation that is different (Jones & Cook 2000). Scholarly electronic publication may therefore be defined as any product of scholarship created, peer-reviewed, produced, distributed, disseminated, retrieved and used on the Internet. This implies that the whole process of scholarly publishing is done electronically via the Internet. Examples of scholarly electronic publishing systems and products include open journal system (OJS); Online Journal of Issues in Nursing; Journal of Electronic Publishing; D-Lib Magazine; Information Research; DOAJ; databases like JSTOR; HINARY; AGORA and EBSCOHOST.

2.5 Computer skills and utilisation of scholarly electronic publications in the higher institutions of learning.

Cromber et al (1997) asserted that in recent years rapid developments in information technology (IT) have made a considerable impact on every aspect of society such that a working familiarity with IT is becoming increasingly important especially in the workplace. Supporting the above view Zin et al (2000:1) observed “knowledge, skill and competence with computer technology are now an asset for those entering the competitive employment market. Every aspect of life from education, leisure and work environment to social interaction is being influenced by computer technology” The advancement in science and technology such as information and communication technology (ICT) has generated a need for new brand of literacy. ICT have resulted in a need for the learning of new human skills, abilities and capabilities/ competencies to handle effectively job related tasks such as research. In a study Makauskante (2006) noted:

Various technological and social developments have been reshaping almost all aspects of human life. Some of the knowledge, skills, abilities, competencies and personal characteristics that were necessary for life in previous centuries have now become irrelevant, while others have becomes critical. The majority of these changes are associated with the proliferation of new technologies particularly information and communication technologies (ICT). The capacity to apply ICT in various areas of human life has become an important contributor to human well-being and the prosperity of society (p.1).

The information user’s (lecturer’s) competence in deploying ICT to achieve his/her job related tasks (research) could not be overemphasized. Hence, searching for information in scholarly electronic publications has become “inexorably linked to computer technology” (Jacobson in Waldman 2003) literacy.

The concept computer skill is synonymous with digital literacy, ICT fluency, ICT literacy, technological and e-literacy and 21st century skills (Markauskaite 2006). In this study the above terms were used interchangeably because the terms involve the application of modern computer in lecturers' daily lives. Gilter (1997) defined digital literacy as "... the ability to understand and use information in multiple format from a wide range of sources when it is presented via computer". Complementing the above definition Utsi and Lowyck (2005) said digital literacy is a baseline set of skills for successfully coping with a complex, often technological world, holding multiple media messages". However, Educational Testing Service (2007:1) noted "ICT literacy skills, ranges from simple uses of technology in everyday life to use in performing computer tasks."

Computer literacy skills according to McCartan in Selwyn (1997) are "the ability to use the computer as a multipurpose tool appropriately". Malpiedi (1989) proposed that computer literacy could be considered to mean possessing the understanding and skills necessary to live in a society that depends upon computer technology. However an operational definition of computer literacy given by Simon-son et al as cited by Zin, Zaman, Judi, Mukti, Amin, Sahran, Ahmad, Ayob, Abdulla and Abdullah (2000) is "an understanding of computer characteristic, capabilities and application as well as an ability to implement this knowledge in the skillful, productive use of computer applications suitable to individual roles in society". With the increase in access to the Internet, definitions of computer literacy skills have expanded to include the ability to use e-mail, graphical interfaces such as (Google, FireFox, and Yahoo), online publishing and the ability to evaluate the content of online materials (Corl, 1996). Though these definitions vary in the degree of exactness it should be admitted that a common feature among them is

emphasis on skills and competences gained by the learner and the need to function adequately in a computer dominated society (Selwyn, 1997).

2.5.1 Assessing computer literacy skills of lecturers

The use of computer for the creation of knowledge has been extensively researched in the past (Miltra 1998; Francis & Katz 1996; and Geissler & Horidge 1993). Different experts use different areas to assess computer literacy skill in accordance with technological progress in IT as microcomputer and application software used become more user friendly in addition to the advancement in electronic communication (Zin et al, 2000:2)

Numerous studies such as that of Selwyn (1997) have examined issues relating to students and workers' ability to use computers. In their study, Lockheed, Nelson and Stone (1985) designed a questionnaire on computer literacy. The instrument comprised fifteen (15) items segmented into computer knowledge (general) computer vocabulary and programming. Also Chang, Plake and Stauch (1985) and Karasz (1991) in their instruments on computer literacy concentrated on the cognitive aspects of computer ability which they described in terms of general knowledge about computer and programming. Other researchers have been more expressive in their approach to assessing computer literacy. The Minnesota Computer Literacy and Awareness Assessment (MCLAA) Anderson et al in Selwyn (1997) has formed the benchmark of several American studies on computer literacy (Biter & Davies 1985; and Chapline & Turkle 1986) but as the authors of the MCLAA themselves argue (Johnson et a 1980) most of the 84 items are concerned only with low level computer skills and understanding with a bias toward programming and hardware. Oliver (1993) tried also to include measures of students understanding of

the applications, limitations and consequences of computer use, but in practice require the student to merely acknowledge these factors rather than be actively aware of them. However, Kay (1993) in a study on computer ability survey (CAS) designed a practical multi-purpose computer ability instrument that comprised of all four areas of computer use or sub-scales, software ability, awareness, perceived control and programming skills. To meet the ever increasing need of computer literacy several studies have been conducted on various areas of computer use. Kay in studying computer literacy level of service teachers reported that respondents rated themselves as having low software knowledge and very low programming skills.

A study of faculty's use of electronic resources found that it was influenced by such factors as computing skills of academic, their age and gender (Majid & Abazova in Waldman (2003). They found an especially significant relationship between computing skills and use of electronic resources in the library, including the online public access computer or OPAC, the library's online catalogue. Faculties with higher computing skills were not only more likely to use and be familiar with their library's electronic resources including the OPAC but also tended to use the Internet more frequently.

2. 5.2 Experience and computer skills in utilisation of e-journal

Computer literacy competence/ ability creates self- confidence and consequently use of ICT for research by researchers. Murphy, Cover and Owen (1989) defined self-confidence as a user's belief his/her capability to use a skill. Therefore, users who have a high level of confidence in IT/ICT use for an example might not necessarily have a high self-efficacy but high self-confidence can lead to their IT/ICT use. Accordingly, O' Brien (2000) argued that user with high levels of self-confidence for example are more likely to

adopt and use web-based project applications. Igarria, Livari and Maragahh (1995) found that “previous expertise has an indirect influence on the use and adoption of IT/ICT.” Individuals are able to use their existing IT (computer) skills to perform task. Also Igarria, Livari and Maragahh (1995) found that computer experience is likely to improve a person’s perceptions and belief of the usefulness of the IT/ICT by enhancing their beliefs in their ability to master the challenge and reduce any fear. Bjork (2002) also found that different users’ attitude and skills have different influence on the use and adoption online document management systems. However, lack of existing IT/ICT, computer skill and experience of IT/ICT may lead to a delay in actual IT/ICT implementation (Love et al Stephenson and Blaza; Stewart and Mohamed; Nitithamyong and Skibniewski and Thorpe in Peansupap & Walker 2005:200). In a study by Omona and Ikoja-Odongo (2006) on application of information and communication technology (ICT) in health information access and dissemination in Uganda found that: 35(64.8%) of the respondents rated themselves as well versed with ICT while 19 (35.2%) reported that they lacked the essential competences. Twenty-nine (53.7%) rated themselves as people who did not require assistance in using ICT facilities to access information compared to 25 (46.3%) who did. The 46.3% who needed assistance were asked to give reasons why such assistance was required. Reasons advanced indicated that respondents lacked enough knowledge on how to use computer facilities. ICT equipment was not available and the skill for utilizing it were lacking. It was also stated that specific skills such as those necessary for using the different links/hyperlinks in the Internet were lacking or inadequate and most unfortunate of all was that they had never used ICT facilities before. On the other hand the 53.7% who did not require assistance in using ICT gave the reasons for this as having received some training and having had experience in using ICT facilities. Besides

being computer literacy they were also familiar with medical information databases and websites.

From the above findings it could be seen that those who rated themselves low in ICT competence needed assistance to improve their utilisation of internet resources. This may explain why there is low use of ICT facilities for health information dissemination in Uganda (Omona & Ikoja-Odonga, 2006). The situation above may be a common scenario in other African countries because the conditions that prevail in these nations are similar in many respects to those in Uganda. For instance, Ajuwon as cited Omona and Ikoja-Odonga in a study at the university of Ibadan Nigeria found that “only 43% of the sample students were found to be able to use computers”. Samuel et al. as cited by Omona and Ikoja Odonga assessed the ICT competence of a representative sample of fourth year students in a Tanzanian medical school. The study established that an estimate of around 50% of the students did not have the necessary skills to enable them to utilize ICT facilities effectively to access and disseminate health information for their day-to-day study research and learning. Lever-Duffy as cited by Zeszotarski (2000) identified students’ lack of basic computer skills as a barrier to the successful integration of computer assisted instruction. Furthermore, Sherry and Sherry (1996) in a study found that “students’ perception of their computer skills, especially in the use of spreadsheet, was positively related to their persistence in college.” Therefore, one may deduce from the above analysis that computer skills/ICT skill fluency is one of the basic considerations lecturers need to utilize scholarly electronic publications for research.

2.5.3 Attitude of lecturers towards computer usage in information retrieval

The information users' (lecturers') attitude towards technology may affect computer literacy skill. Users' motivation to use scholarly electronic publications might also be related to their attitude towards technology such as perceived clear advantage of use, ease of use, relevance to their job and professional credibility. The first two variable 'clear advantage' and 'ease of use' are found to be associated with their IT/ICT and SEP use (Peansupap & Walker, 2005: 200) Rogers (1983) found that a perceived clear advantage is an important technology characteristic that generally influences innovation diffusion. Also Davis, Bagozzi and Warshaw (1989) proposed a technology acceptance model (TAM) that predicts a user's intention to use information system. The result shows that perceived usefulness and perceived ease of use are essential variables motivating the use of word processing technology in an education environment. Similarly Igarria, Parasuraman and Baroudi (1996) found that "usefulness and ease of use motivates professionals and managers to use computers and that users are more likely to use and adopt computers technology if they think that it is useful to improve their productivity and performance". Ogunkola (2008:56) in a study of computer attitude, ownership and use as predictors of computer literacy of science teachers in Nigeria found that "the combination of computer attitude, ownership and frequency of use effectively predicted the computer literacy of the science teacher." In effect it has been established above that user's attitude towards computer influences the level of computer use and consequently the level of computer literacy.

2.6 The influence of institutional factors on utilisation of scholarly electronic publications.

Utilisation of scholarly electronic publication is a process that takes place within specific institutional context or communities of practice. Davies (1996:377) posited that the institutional context of any new information system is a vital determinant of system success. Good and enabling academic environments are important for scientists who prefer to work in functional rather than dysfunctional organization (Auranen, 2007). Rogers (1983) in a study identified personal characteristics, innovation characteristics and organizational characteristics as principal factors influencing diffusion of innovation. Astebro (1995) studied the use of electronic mails systems (EMS) in four main departments of a large Swedish manufacturing company and found that social and management factors influenced the rate of EMS diffusion and use. The decision to deploy ICT (electronic journals) in educational institutional is that of management while staff and students are encourage by management to use ICT. Corroborating the above fact Peansupap and Walker (2005:197) stated, "Organization adopts IT innovation and then encourages and facilitates its use to expected users". In effect, researchers' response to use electronic scholarly publications is predicted on management decision or policy on it. Therefore, managers of universities should provide a conducive and enabling work place environment for researchers to explore and use electronic information to increase productivity. Zolingen, Streumer and Stoker (2001) observed, "Leadership responsibilities building trust and creating a cohesive environment could support and encourage information sharing." Effective coordination of resources such as information technology and other communication media, will allow recipients greater access to information. Other studies, such as those of Davies (1996); Abel. Libescher and Denman

(1996); Desouza, Awazu and Wan (2006); Peansupap and Walker (2006) and Auranen (2007) have also shown that institutional factors affect ICT adoption, diffusion and utilisation. Some of the institutional factors affecting utilisation of scholarly electronic publications are: institutional information and communication technology (ICT) infrastructure, immediate workplace environment, academic culture such as reward, training, institution's ICT use policy, academic workload, access and location of electronic resources, cost, and other infrastructure such as electricity.

2.6.1 Institutional information and communication technology (ICT) infrastructure

The provision and utilisation of scholarly electronic publications in library require input resources like technology infrastructure and personnel. Rosenberg (2005:7) in a study of digital libraries in Africa noted "an adequate ICT infrastructure with a sufficient number of network and Internet connected workstations is essential if a library is to offer access to e-resources and develop e-services." Information and communication technology required for hosting and use of scholarly electronic publications in an academic library include computers, servers, scanners, printers, software and network connectivity. Therefore, ICT facilities are essentials to enable use of electronic resources. The quantity and quality of ICT infrastructure available in a library should be a thing of concern to library manager. To this end, Byrne (2003:4) noted "without enough computers, it is impossible to get sufficient access time. Without adequate memory, speed and storage, it is impossible to open, download or use electronic scholarly information." Contrary to the provision of adequate computers to improve use of electronic information resources, Rosenberg (2005:7) in her study on digital library in Africa found that "eighty-five percent of the libraries in the survey provide one computer for every 100 and 36% provide one

computer for every 500 students.” This situation is deplorable and may influence use of scholarly electronic publications.

Another institutional ICT infrastructure is qualified ICT personnel to maintain and manage ICT facilities. Emmanuel and Sife (2008:3) observed: “It is imperative that there are qualified technical personnel for managing and maintaining ICT facilities and networks that the library system runs”. However, many libraries have inadequate qualified ICT personnel. Most traditional librarians have low ICT skills and sometimes have technology phobia. Some libraries have managed to recruit and train their own ICT experts from outside.

Bandwidth is yet an ICT challenge facing federal universities in Nigeria in the provision and use of libraries e-resources. Bandwidth refers to the amount of information that can be carried in a given time period (usually a second) over a wired or wireless communication link, expressed as bits per second (PLATO, as cited by Emmanuel & Sife 2008). The higher the bandwidth, the more data can be transferred in bits per second. Whenever there are few data transferred in bits per second i.e. low bandwidth, users get frustrated as it takes long time to retrieve information from the Internet. Low bandwidth is a problem common to many universities in Africa. Effects of low bandwidth are felt more in the library because of the need to down-load heavy information resources.

Still on institutional factor is power supply. ICT facilities rely on electricity for their functioning. Frequent power cut is a persistent problem in Nigeria. This affects among other things management and utilisation of ICT facilities and information services. To solve this challenge backup generator are required. However, Emmanuel and Sife (2008:5) observed “The backup generator has however, not solved the problem as no

funds are being allocated to fueling and running the generator.” Without the basic infrastructure of reliable electricity supply to power other ICT infrastructure, access to and use of scholarly electronic publication may be very difficult if not impossible.

2.6.2 Immediate workplace environment/social network

The Utilisation of SEP in an academic institution needs a sharing and learning workplace environment. The relative position and connection between actors embedded in a specific social structure affects the knowledge transfer between them (Desouza, Awazu & Wan 2006). Everyone within an organization possesses tacit job performance knowledge. Learning and sharing knowledge about e-journal usage among researchers is important. Roger (1995) argued that learning is a key factor in innovation development. He suggested that training and development should be shifted to an experiential style of learning. Grantham and Nichols (1993:202) stated “Organizational learning occurs when people in an organization collaborate to share their different visions, knowledge, experiences and skills.” Organizational learning is a key ICT use factor when ICT application development is frequently subject to change (Attewell, 1992; and Fichman & Moses 1999). Tacit knowledge, grown from users’ experience is a valuable organizational asset (Nonaka, 1995; Davenport & Prusak, 1998). Ideally, sharing tacit ICT knowledge built from user experience can improve ICT use within the institution and suggest how to use ICT more effectively (Gribson & Smilor 1991). Carlopio (1998) explained that co-workers, friends, family, peer etc might best influence personal change. Collegial help and mentoring is one way that knowledge sharing can most effectively occur because experienced users can give strong support by assisting novices to use ICT applications through knowledge transfer. Therefore, collegial help strongly influences change and use

of ICT in organization (Senge et al, 1999). Compeau and Higgins (1995) argued that peer and collegial support is vital. This can be activated through groups of colleagues, some highly experts in what has been referred to as a community of practice (Galliavn, 2000; and Wenger & Snyder, 2000).

Therefore, scholars' social networks and academic workload not only affect their choices of information seeking strategies rather, these networks are often the place where information is sought, interpreted, used and created (Talja, 2003). While Meadows (1998) pointed out, scientific research is bound up with social interaction. The need to acquire information, to select, distills and modifies ideas all involve scientists in communication, and communication is by definition a communal activity”.

2.6.3 Academic workload and access time factor on use of electronic journals

Time manifests in many ways to influence access to and use of scholarly electronic publications by researchers. The length of time lecturers have allocated to search SEP, the time of the day search takes place, interval(s) between searching, the time lecturers anticipate for search and the time a competing task will take place all affect researchers access to electronic information (Slone, 2007:508). Researchers in Africa have limited time to access scholarly electronic publications in pursuance of the research mission of their institutions. Teferra (2003:88) in a study found that “among the numerous challenges confronting higher education in the continent is limited access time to electronic communication media”. Furthermore, the author noted:

Overcrowding and over-enrollment epitomize most African universities... as many of the scientists' surveyed report the increasing high teaching load associated with the unprecedented growth and expansion in enrollment has diminished the time left for research and communication... Some of them reflected on the heavy teaching load they carry. A Botswanese chemist wrote; don't have enough time for research. The teaching load as well is too much! Another Botswanese geophysicist in concurrence wrote, "No time to work on publication since a heavy teaching load." An environmental biologist simply wrote it is difficult to combine publishing field research and teaching. A Nigerian computer scientist wrote too much teaching administrative work hampers publication productivity". An Ethiopian taxonomist wrote, "As everybody is tied up with teaching little attention is given to promote scientific communication." (p.88)

This could be interpreted to mean that heavy work load such as teaching, lecturing, marking of examination scripts and others administrative responsibilities and high students' demand on lecturers' time may have contributed to limited time left for them to access scholarly electronic publications for research purpose. Hancock, Lane, Ray and Glennon (1992) in a study found that "respondents viewed administrative, committee, and teaching duties as the primary impediments to research productivity."

The length of time a researcher has allocated to search and download SEP affect's access. Once download time is longer than the allowed time, it means that more time will be required to continue and to complete the search. Apart from increasing cost in institutions where researchers pay for access time, longer download time discouraged researchers from having access to SEP. Liew, Foo and Chennupati (2000) in a study of graduate students and users use and perception of electronic journals found out that downloading time and speed of retrieval is one of the issues and concerns users had regarding e-journals. Similarly, Lwoga, Chimwaza, Aronson and Vent (2007) conducted a study on improved access to science scholarship in Africa and found that "most users at

Sokoine University of Agriculture (SUA) in Tanzania complained about spending a lot of time only to download one article. This is why they do not intensely access and use e-resources.” This problem may not be unconnected with the capacities of ICT equipment/tools such as low bandwidth available to the researchers in their institutions. Corroborating the view above The Stanford University Library (2002) in her e-journal user study noted “infrastructure matters in the perception of problems with download.” Also The Stanford University Library study found that “few users reported downloading PDF and HTML to be a big problem and that one explanation of these findings is that slow download is related mainly to user’s local infrastructure, such as old computers and slow local servers.” To ameliorate the situation, the time of the day the search takes place becomes imperative. This might explain why Lwoga et al (2007) in their study concluded “at Sokoine University of Agriculture, Tanzania (SUA), to compensate for low bandwidth, users search and download articles from HINARI, AGORA and OARE during late hours in the evening or very early in the morning when everybody else is not using the Internet.”

2.6.4 Staff training and lecturers’ use of scholarly electronic publications

An important institutional factor that may predict lecturers’ utilisation of SEP is training/learning. Information technology (IT) requires users to learn how to operate new IT tools to become computer fluent/ competent (Peansupap & Walker, 2005) and to understand how best to use and adopt IT/ICT applications. Training occurs through formal or informal ways. Formal learning takes place when organizations formally provide resources, persons that facilitate delivery of IT knowledge into and within organization for example training and technical help desk IT support. Informal learning occurs during social interaction. Training was found to be an essential factor in information system (IS)

such as digital libraries success during implementations stage (Akins & Griffin, 1999; and Sackton, 1999). Nelson and Cheney (1987) found that training influences user's ability and acceptance of information system because they take time to learn and use only a few information system capabilities. Also their lack of skill and training was found to be an important barrier to business accessing the Internet (ABS in Peansupap & Walker, 2005). For training to be functional to both employees and employers, Nelson (1991) argued that because there is a limit for everyone to learn all aspects of business knowledge, training should provide specific skills that are related to users' need and work processes.

User behavior also affects the training needs of users classified as pragmatists (O'Brien, 2000) so it is important to assess user's training requirements to reduce the knowledge gap between what they already know and what they need to know to best perform their job through undertaking a personalized user needs analysis (Nelson, Whitener & Philcox, 1995). The assessment of training not only assists the organization on understanding the knowledge gap but it also improves effectiveness of training (Carlopio, 1998). For example, training assessment helps trainers to prepare both the context and level of training to ensure compatibility with user's need. Learners of computer skills require time to actively participate during the training programme because they generally do not have time to learn being busy with or distracted by their work duties (Senge, 1992; and Huysman, Fisher & Heng, 1994). This lack of time restricts the effectiveness of implementing a change initiative (Senge et al, 1999). People are reluctant to commit their time to learning and training if they have no time to practice and reflect.

To improve utilisation of IT/ICT applications, learners should be provided with enough time to develop their skills and familiarize themselves with any new computer

application (Akins & Griffin, 1999; and Sackson, 1999). Also, Ashcroft and Watts (2004) noted that it is vital for those in management positions to recognize the imperative of continuing professional development (CPD) and ensure that staff are proactive in maintaining up-to-date levels of expertise (in ICT). Also, Steinmueller (2001) suggested that many ICT users are self-taught, and are capable of developing an understanding of ICT through the experience of utilizing them. If this is the case then countries that are unable to provide extensive access to ICT are inevitably marginalized as they are less likely to produce capable self-taught persons. Corroborating, Steinmueller's suggestion Ashcroft and Watts (2004) in a study on ICT skills for information professionals in Nigeria, found that "staff are however, encouraged to undertake training on their own. The authors concluded that greater take up of free trials of e-resources would allow for experimentation and self-teaching of ICT skills.

The analyses above had established that training is fundamental in the process of utilisation of SEP by lecturers. To this end educational institutions should organize computer training for their lecturers and students. While the lecturers and students on their part should participate actively. Hence, Corl (1996) observed "although institutions must do their part by providing adequate equipment and training opportunities students (lecturers) must do their part by participating in computer-skills training". Training to provide skills in accessing, manipulating and evaluating scholarly electronic information sources and devices is necessary for both students and lecturers success in higher education and the job environment. Educational institutions can employ a number of methods to train their students and staff to be computer literate. Integrating computer literacy with existing courses and expanding general education requirements ensure that students will become familiar with computer technology (Zeszotarski 2000). Atilgan and Bayram (2006) in a

study found that “users preferred to be trained via Internet, instructional materials, training classes and consulting librarians.”

2.7 Usefulness of scholarly electronic publications and information utilisation

Usefulness is one of the crucial measures of how appropriate the information resources or services are for a defined user group. Therefore, what causes lecturers to accept or reject scholarly electronic publication? Among the many variables that may influence lecturers to use or not use scholarly electronic publication is usefulness- the extents to which lecturers believe it will help them perform their research job better. Hence Davis (1989:320) observed that perceived usefulness is “the degree to which a person believes that using a particular system would enhance his or her job performance”. This is situation relevance that means the value, utility, pragmatic application or pertinence of a document to the task or problem at hand (Mizzara, 1997; Park, 1997; Casijn & Ingwersen, 2000; and Hjørland & Chstensen, 2000). If the user believes a document is about the topic area of interest then it is topically relevant. Within the organization context, a system that is high in perceived usefulness is one that the user believes will have a positive user-performance relationship (Ramayah, Jantan & Aafaqi; 2003).

Evidences to show the usefulness of scholarly electronic publications in research can be found in several studies (Abels, Liebscher & Denman, 1996; Tenopir, Hitchcock & Pillow, 2003; Talja, Savolainen, & 2004; Torma & Vakkari, 2004; Kortelainen, 2004; Kerins, Madden & Fuultan, 2004; Ibrahim, 2004; Desouza, Awazu & Wan, 2006; and Tsakonas & Papatheodorou 2006). Research findings have shown that users who have access to scholarly electronic publications tend to use more articles than users obtaining

their articles otherwise (Mackie-Mason et al. 1999). Tenopir, Hitchcock and Pillow (2003) in a user study noted, “Most of the respondents (more than 60%) greatly value electronic journals.” Also they reported “faculties are comfortable using electronic resources, believe a variety of electronic resources are important to their research and considered electronic databases invaluable.” In another study, Ramayah, Jantan and Aafagi (2003) found that “perceived usefulness is positively related to messaging, browsing and downloading”. They concluded that the findings... is evidence that the Internet is an important source of information and materials that is much needed to complete projects and assignments in a short period of time.

Usefulness as an extension of the concept of relevance is a research interest of users and information behavior studies. It inquires about the quality of cognitive, semantic and effective interaction between the user and the content of a document (Tsakonas & Paptheodorou, 2006). Certain criteria have been identified as attributes of usefulness that can affect users’ interaction with the content of information source. These determinants according to Fidel and Green in Tsakonas and Paptheodourou (2006:403) are; relevance, format, reliability, level and timeliness.

The relevance of an information source denotes how (topically) the content corresponds to the work of the information user (lecturers research interest). Xu and Chen (2006:962) noted, “Relevance is the perceived cognitive and pragmatic impact of the content of a document in relation of the user’s problem at hand.” This is topical relevance and is the user’s subjective judgment of a document’s content. If a user believes that a document is about the topic area of interest, then it is topically relevant. Ibrahim (2004) conducted a study in United Arab Emirates University (UAEU) and

found that “most of the faculty members valued the importance of e-resources and services in teaching and research.” Furthermore, Ibrahim noted that the content of those e-resources were relatively good quality and then concluded “the quality and authentication of the content of e-resources were explanation for low use of e-resources.” The implication of this is that the contents of e-resources are valuable, reliable and relevant to the research task of faculty members in United Arab Emirates University (UAEU). Therefore relevance was not a factor responsible for low use of e-resources contents. Complementing Ibrahim’s findings, Tsakonas and Paptheodous (2006) in an investigation of electronic information services found that “a significant number of users perceived relevance as very important for the completion of their work task” (p.406). This implies that users are looking primarily for e-resources that are applicable to the needs of their task. In another study on Internet adoption among lecturers in Ghana’s premier university, Hinson Adika and Buatsi (2005:6) discovered that “almost all the academic indicated that the Internet could enhance or promote their lives as lecturers.” The literature reviewed above has shown that relevance is a determinant of the usefulness of a document. Therefore, the relevance of the content of scholarly electronic publications in relation to research interest determines their utilisation by lecturers.

It has been reported earlier that format is an attribute of the usefulness of an information sources. Format is a resource attribute that connects with the user’s work practice and or the available technological infrastructure (Tsakonas & Papatheodorou, 2006:403) such as portable document format (PDF) and hypertext markup languages (HTML). Tenopir, Hitchcock and Pillow (2003) noted, “Format could be both viewer-friendly such as HTML and printer- friendly, such as PDF. Users of electronic resources prefer to view document in HTML format and print document PDF format.” Though the

effect of format on use of electronic resources has not been adequately established in literature yet, Tsakonas and Papatheodorou (2006: 406) in their study on usefulness and usability of information services found “that the format of information was not considered important. The respondents believe that format of a resource is not essential for the completion of their task.”

Reliability is another issue that influences usefulness of information. This means the credibility and trustworthiness of the content of an information source. Credibility can be defined as the predictability, reliability and honesty one has towards fulfilling obligations (Anderson & Weitz in Desouza, Awaza and Wan, (2006:38). Reliability and credibility are likened to trust. The greater the trust a user has in an information source, the more inclined the user is to use that information source. Trustworthiness is determined primarily by peer review but also by the reputation of the publishers, by the readers’ knowledge of the researcher (Kling & Mickim, 1999) and the reputation of the researcher’s institution and in the case of journal publication, the reputation of journal title (Halliday, 2001). Hence, it may be postulated that perceived reliability of information sources is related to intention to use information source. Landry (2006:1901) in a study on work roles, tasks and information behaviour of dentists found that “authority and trustworthiness were given as the principal resources for choosing sources for research task”. In support of his finding, Tsakonas and Papatheodorou (2006: 406) found that “The mean rating for reliability was high and it was consistent with the importance given it by the user”. Furthermore the authors noted. “Over half of the information scientist judged reliability as a very important feature, while the chemical engineers provided similar scores”.

Contrary to the finding, Desouza, Awaza and Wan (2006:41) did not find support for their hypothesis that stated, “The perceived credibility of the knowledge source is positively related to intention to use knowledge”. This means that credibility of the content of information source does not influence its use. One of the reasons advanced by the authors for rejecting the hypothesis is that their sample consisted of very high-end knowledge workers as such to a large degree their credibility in terms of an employee’s qualification and performance can be assumed to be of high level.

In a study, Tenopir, Hitchcock and Pillow (2003) found that “almost two-third of the faculty (62%) and graduate students (66%) say they use the library’s website and that when information comes from the library almost all (98.2%) believe it is from a credible source. Less than half (45.9%) reported using information from Internet without verifying it.” This lay credence to the fact that institution is a determinant of trustworthiness of an information source. The implication of the above is that users of information sources authenticate, filter and verify their information source to ensure reliability and credibility before they use it. Therefore, it could be said that reliability influences usefulness of information source and by extension lecturers’ utilisation of scholarly electronic publications.

Another determinant of usefulness is level of information resources. Level of information resources refers to the range of dept of representations of information made available and accessible to user such as catalogues, bibliographies, indexes, abstracts, table of contents and full-text. Taskonas and Papatheodoros (2006:406) found that “the level of information was perceived as extremely important and scored a high mean rate. Specifically more than half of the chemical engineers believe that the level of

information provided by an electronic information service is vital for the purpose of their work and third of information scientists share the same opinion". In a study, The Stanford E-journal user study (2002), it was found that health professionals with an M.D. degree use abstracts rather than full-text articles to access treatment protocols and say they would go without an article rather than pay for online access." Also the study found that "readers of electronic journals often search journal table of contents than go to the full-text article to read it briefly online in HTML and then request a PDF file for archiving or printing. In a JSTOR survey it was found that faculty members from humanities, economics and social sciences use online catalogues, full-text electronic journal databases and abstracting and indexing database most frequently and they expect to use them more extensively in the future (Finholt & Brooks in Ibrahim 2004:19). Ibrahim (2004:22) found that "e-journals and full-text articles were more popular than online catalogue and bibliographic database among lecturers in United Arab Emirates University (UAEU)." The analyses above have established the fact that different levels of information sources are used. Consequently, the researcher may conclude that level of representing information influences its usefulness.

Timeliness is another determinant of the usefulness of information resource. Timeliness investigates how current the information resource is and how well it will satisfy the information user's need. It provided answer to such question like is the information source new and up-to-date? In a study Landry (2006:1902) found that "more important than either convenience or accessibility was the ability to look for new updated information. Currency resonated with a third of study participants who were attracted to Internet as it was thought to offer the latest information. Similarly, Tsakonas and

Papatheodorou (2006:406) in their study found that “timeliness of information is perceived as a very important feature affecting utilisation of library electronic services.”

The literature review above had revealed that relevance, format, reliability, level of information and timeliness are measures of usefulness of the content of a document and therefore explains why usefulness is a predictor of utilisation of scholarly electronic publications.

2.8 Usability of scholarly electronic publications and information utilisation

In order to produce high quality research, researchers must have access to research data including large specialized data and to the products of research including scholarly publications. In the United Kingdom the Science and Innovation Investment Framework 2004 2014 argued that access to research knowledge is an important component of the innovation system. The research community “must have ready and efficient access to information of all kinds such as experimental data sets, journals, theses, conference proceedings and patents” all of which are considered “the life blood of research and innovation.” Furthermore, it noted that much information is now available in digital form and therefore asserted among other things that the research community needs system that is easily navigable (CARL, 2005).

Access according to the US National Library of Medicine (2004) is defined as “the ability to locate, to gain entry and use to an electronic resource.” Access to scholarly electronic publications is of critical importance to researchers, faculty, staff and students and their ability to achieve and advance the university’s teaching/learning and research goal (University of Colorado 2005). Mackie-Mason et al. (1999) reported, “Electronic

access to scholarly journals has become an important and commonly accepted tool for researchers.” When used efficiently, scholarly electronic publications and digital libraries can be a boon to both researchers and practitioners by providing quick and easy access to both research findings and other relevant information (Rudner, 2000)

Users of today’s virtual information resources can get to scholarly electronic publications through a variety of channels ranging from the websites of the producers or publishers of the information resources to a number of intermediaries and services providers, search tools and services and so on. Chowdhury (2005) in a study on access and usability issue of scholarly electronic publications identified channels through which a researcher can get access to scholarly publication as: full texts of journals-print electronic, born e-journal and e-book, digital libraries –special collections, CD-ROM and online databases, subject gateways, Web search tool-search engines, special initiative–JSTOR (AJOL and APEX), electronic archives, special websites of institute and professional bodies and personal websites.

Other studies such as Waldman (2003); Torma and Vakkari, 2004; and Atilgan and Bayram (2006) have shown varieties of channels of access to digitized information available to researchers and students. Ray and Day (1998) in a study found that “dependent upon individual university subscriptions students have a number of on-line database available to them. Furthermore, they noted that “in conjunction with these technological advances, many stand alone (CD-ROMs) are being increasing networked providing access to network computer terminal in the institution not solely within the library itself hence improving user accessibility”.

Each of the electronic access channels has its own policies and techniques for the identification organization and retrieval of information resources and these not only influence researchers' usability of these services but also the outcome of users search on them. The advent of information and communication technologies (ICT) has made a tremendous impact on access to information and therefore, has offered researchers new opportunities to create and extract value from scholarly electronic publications (Mackie - Mason, Bonn, Riveros, & Longee, 1999). Chowdhury) (2005) posited;

Internet has made it possible to get access to virtually any type of information located anywhere in the world. The web has facilitated the creation and or redesigned of many information access channels including the online journals and service providers, e-book, digital libraries and only databases and search services. Sophisticated web search interfaces to e-journals databases and digital libraries are now common features. (p.6)

However, having all of these sophisticated information access systems all round the fundamental question still remains is it now very easy to get access to the right information at the right time with minimum resources and efforts? (Chowdhury, 2005). Borgman (2000) had observed "Despite the technological advances, information system continue to be difficult to use". The implication of this is that the new digitized information system such as scholarly electronic publications are not relatively easy to use in an efficient, effective and satisfactory way to perform specified tasks with work environment. Pertinent to the above, is the issue of usability of scholar electronic publications. Preece, Rogers and Sharp in Diaz (2003) pointed out that "addressing usability is very important since e-book are interactive systems and consequently have to be designed with the needs of their users in mind."

Usability of an information system refers to its capabilities that enable the user to use it easily and effectively to perform a set of specified tasks within a specified environment. The usability of information system/services means how easily it can be used to get access to the required information. Some issues are involved in usability of information systems and they include interface, design, retrieval mechanism and interoperability where multiple channels and or databases are involved (Chowdhury, 2005). Several studies like those of Abels, Liebscher and Denmen(1996); Liew, Foo and Chennupati, (2000); Rusch-Feja and Siebeky (1999); Diaz (2003); Davis and Price (2006) and Woodward, Mackie et al (1998) conducted on usability of information system found among other things that accessibility is contingent on usability. In a study Tsakonas and Paratheodorou (2006) noted that among the many problems found by usability studies of libraries- related information services the three most commonly met are terminology, layout and navigation. According to the authors, terminology problems in information websites alienate users and place them in a hostile information environment. Aesthetic appearance and visual layout have been found to influence system performance in download time and to discontent users through inappropriateness. Navigation aids are supposed to improved user interaction by means of recognizing current states and to support regularity during a session but sometimes for several reasons fail to do so. Jeng in Tsakonas and Papatheodorou (2006) found that “the need for learnable systems is underlined in order to minimize the time required to learn the use directives and upgrade the efficiency level. Tsakonas and Papatheodorou adopted ease of use, aesthetic appearance, navigation, terminology and learnability as criteria for evaluating usability of electronic information services. They found that ease of use and navigation were the most influential attributes of an information system. They noted:

These attributes permit users to conclude their informational tasks and consequently their work tasks successfully. Systems that are both easy to use and to navigate may minimize the time and effort users spend and may potentially lead to the third highlighted attribute which is learnability.

Also Abels, Liebscher and Denman (1996) found that “majority of users of electronic information services do not consider them to be very easy to use.” Furthermore, they noted that perceived ease of use does correlate significantly with information network (channel) used and number of information services used.” This may be interpreted to mean that accessibility of electronic system is predicted on usability that is ease of use. Consequently, Abels, Liebscher and Denman (1996) noted:

In order to use the network, faculty must perceive the network to be accessible. To achieve this, they need access to a primary workstation with a network connection as close as possible to their work area and shared with as few colleagues as possible. However, use of individual network services relates to perceived utility, perceived ease of use and task. (p. 156).

In developing countries and Nigeria in particular, few researches have been done on usability. Ehikhamenor (2003) conducted an empirical study on Internet facilities: use and non-use by Nigerian universities scientists and found ease of use as one of the problems militating against scientist use of Internet resources. Furthermore, Ehikhamenor (2003) noted:

The problem could discourage them from even trying to learn about the Internet. It takes a lot of patience and determination to keep trying unsuccessfully to make a dial-up connection with a telecommunication system that is performing below expectations. Even with a successful connection disruption often occurs while navigation is in progress. Consider the problem of getting stranded in a labyrinth of imperfect links, poor interfaces and screens of irrelevant information. If information is difficult or time-consuming to get them it is not really accessible. (p.45).

Also, Rosenberg in Ehikamenor (2003) noted that “ease of use is a dimension of accessibility and any source of information that is difficult to use cannot be said to be accessibly.” Access to scholarly electronic publications for research by lecturers is contingent on access channels and usability. Availability of access channels alone without good features such as ease of use and easy navigation may discourage researchers from use of the information system for research.

2.9 Appraisal of literature review

The review of literature has shown that computer skills, institutional factors, usefulness and usability influenced the level to which lecturers utilise scholarly electronic publications for research. It is imperative to note that majority of the studies reviewed were conducted in the developed countries. There have been few empirical studies on how lecturers in Nigerian universities utilised scholarly electronic publications for research. Most of the few empirical studies were conducted prior to widespread acquisition and development of scholarly electronic publications and Internet connectivity in libraries of federal universities in Nigeria. Hence, current use situation may not be understood to enhance research.

Furthermore, no empirical study had attempted to explain the combined influence of computer skills of lecturers, institutional factors, usefulness, and usability on utilisation of scholarly electronic publications and lecturers. There is a knowledge gap in the present situation of lecturers’ utilisation of scholarly electronic resources in federal universities in Nigeria. Therefore, an understanding of the relationship may allow university managers, university librarians and other stakeholders to design more effective scholarly electronic

publications (e-journals) access interventions for lecturers' utilisation in federal universities in Nigeria. This is the gap the study is set out to fill.

2.10 Theoretical framework

A number of theories have been postulated on why people accept and use new products. Among these are the theories of Ajzen and Fishbein (1980) The Theory of Reasoned Action (TRA) Davis (1989) The Technology Acceptance Model (TAM) and Rogers (1993) The Diffusion of Innovation (DOI)

Theory of Reasoned Action (TRA)

Ajzen and Fishbein (1980) formulated the Theory of Reasoned Action. The Theory of Reasoned Action (TRA) suggests that a person's behavior is determined by his/her intention to perform the behavior and that this intention is, in turn, a function of his/her attitude toward the behavior and his/her subjective norm. The best predictor of behavior is intention. Intention is the cognitive representation of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior. Three things determine this intention: their attitude toward the specific behavior, their subjective norms and their perceived behavioral control. TRA holds that only specific attitudes towards the behavior in question can be expected to predict that behavior. In addition to measuring attitudes toward the behavior, we also need to measure people's subjective norms – their beliefs about how people they care about will view the behavior in person's attitudes. Finally, perceived behavioral control influences intentions. Perceived behavioral control refers to people's perceptions of their ability to perform a given behavior. These predictors lead to intention. A general rule, the more favorable the attitude and the

subjective norm, and the greater the perceived control the stronger should the person's intention to perform the behavior in question.

Technology Acceptance Model (TAM)

Davis (1986) developed the Technology Acceptance Model (TAM). TAM is an adaptation of the Theory of Reasoned Action (TRA) to the discipline of information system. TAM postulates that the perceived usefulness and perceived ease of use determine an individual's intention to use a system with intention to use serving as a mediator of actual system use. Perceived usefulness is also seen as been directly impacted by perceived ease of use.

It could be observed that both TRA and TAM have strong behavioral elements and assume that when a person forms an intention to act, he/she will be free to act without limitation. In reality constraints such, as limited ability, time, environmental or organizational limits, and unconscious habits will limit the freedom to act. The models do not account for social influence in the adoption and utilisation of information systems.

Also, Agbonlahor (2005:38) observed that these theories are “deficient in painting a universal picture of the factors that affect the acceptance and adoption of new technologies by a population of individuals. To fill up this gap she suggested “Rogers (1962:1995) Diffusion of Innovation Theory is regarded as seminal in explaining in the adoption and spread of new technologies or ideas in a community over a period of time”. On this premise Rogers' diffusion of innovation theory was adopted as the theoretical base on which this study was anchored.

2.10.1 Diffusion of Innovation Theory

According to Rogers (1995) diffusion refers to the process by which an innovation is communicated through certain channels over time among the members of a social system. Diffusion is a special type of communication concerned with the spread of messages that are perceived as new ideas.

The four main elements in the diffusion of new ideas are (i) The innovation : (ii) Communication channels: (iii) Time and (iv) the social system. An innovation is an idea, practice or object that is perceived as new by an individual or other unit of adoption. The characteristics of an innovation as perceived by the member of a social system determine its rate of adoption. The characteristics are (i) relative advantage (ii) compatibility (iii) complexity (iv) trialability and (v) observability.

Relative advantage - This is the degree to which an innovation is perceived as better than the idea it supersedes. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption is likely to be. Kortelainen (2004) in a study on the use of e-journal concluded that “a lot of relative advantage through utilizing the hyperlink structure, navigability and the possibility, also to link new kinds of material (audio, video) to the articles.”

Compatibility – This is the degree to which an innovation is perceived as being consistent with the existing values, past experiences and needs of potential adopters. An idea that is incompatible with the value and norms of a social system will not be adopted rapidly as an innovation that is compatible. Kortelainen (2004) noted that “e-journals perform the same

functions as its predecessor such as validating the quality of research, communicating information, building a collective knowledge base and being as source of credit.”

Complexity (Simplicity and ease of use) – This is the degree to which an innovation is perceived as difficult to understand and use. New ideas that are simpler to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understanding. The users of SEP are expected to acquire new skills such as to read from the screen, browse electronically, and not to be able to take the publication into his hands, which all can be considered as complexities of SEP. Also, electronic equipment and network connection enabling all this are necessary. Requirement like this may slow the adoption (Kortelainen: 2004).

Trialability – This is the degree to which an innovation may be experienced with on a limited basis. An innovation that is trialable represents less uncertainty to the individual who is considering it for adoption, who can learn by doing. In the case of e-journals it implies their use through digital libraries, cyber café and Internet provided that the user has access to one or through open access journals that do not require payment (Kortelainen, 2004).

Observability – This is the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation the more likely they are to adopt it. In SEP studies this could mean that the title of the publication should be uniquely identified (Kortelainen, 2004).

In view of the above, one may conclude that innovations (such as scholarly electronic publications) that are perceived by people as having greater relative advantage,

compatibility, complexity, trialability and observability would be adopted more rapidly than other innovations

2.10.2 Communication channels

Communication is the process by which participants create and share information with one another in order to reach mutual understanding. A communication channel is the means by which message get from one individual to another. Mass media channels are more effective in creating knowledge of innovations, whereas interpersonal channels are more effective in forming and changing attitudes toward the new idea, and thus influencing the decision to adopt or reject a new idea. Most individual evaluate an innovation, not on the basis of scientific research by experts, but through the subjective evaluations of near-peers who have adopted the innovation. These near-peers thus serve as social models, whose innovation behaviour tends to be limited by others in their system.

2.10.3 Time

The third main element in the diffusion of new ideas is time. According to Rogers (1995) time variable is involved in diffusion in three ways: the innovation –decision process: innovativeness: and innovation’s rate of adoption. The innovation decision process is the mental process through which an individual passes from first knowledge of an innovation to a decision to adopt or reject, to implementation of the new idea and to confirmation of this decision. Innovativeness of an individual according to Rogers (1995:40) is “the degree to which an individual is relatively earlier in adopting new ideas than other members of his social system.” There are five adopters’ categories in the diffusion process according to innovativeness: (1) innovators (2) early adopters (3) early majority (4) late majority and (5)

laggards. The rate of adoptions is the third way in which time is involved in diffusion. The rate of adoption is the relative speed with which members of a social system adopt an innovation. It is measured as the number of members of the social system that adopt the innovation in a given period. Innovation's rate of adoption is influenced by the five perceived attributes of an innovation (Rogers & Scott, 1997).

2.10.4 The social system

A social system is defined as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal. The members or units of a social system may be individuals, informal groups, organizations and/or subsystems. The social system constitutes a boundary within which an innovation diffuses. In this study federal universities are the social system where lecturers are members.

An important concern to the understanding of the diffusion- process is critical mass which occurs at the point at which enough individuals have adopted an innovation that the innovation's further rate of adoption becomes self-sustaining. To this end efforts should be directed on the early adopters to adopt an innovation. Early adopters are role models to other members of the social system. Hence they are instrumental in getting more individuals to use the new idea and to ensure successful diffusion of an innovation (Rogers & Scott, 1997).

Diffusion of innovation theory has been adopted in several studies in Library and Information Science. Among these are the works of Crane (1975), study of invisible colleges, Lancaster and Lee (1985), study of the diffusion of the term acid rain, Lindholm-Romantschuk (1994), study of the diffusion of monographs representing the humanitarian

and the social sciences and Kajberg (1996) in his study of the diffusion of ideas from foreign countries into Danish Library and information science. Oromaner (1986), studied the diffusion of publications representing a special field in American sociology into mainstream sociology, Kartlainene (2001), the international diffusion of a national scientific journal and Rogers and Scott (1997) in a study on the diffusion of innovation model and outreach from the national network of libraries of medicine to native American communities. In Nigeria, Agbonlahor (2005) used the diffusion of innovation theory when she studied the utilisation level and attitudes towards information technology among Nigerian university lecturers.

2.11 Conceptual framework

The research model that was adopted for this study was based on the Diffusion of Innovation Theory (DOI). The proposed model is shown in Fig 2.1. The research model proposes that there exist some relationships and interactions between some variables and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria. First, it was proposed that computer skills of lecturers, institutional factors, usefulness and usability are the antecedents' factors that have relationships with lecturers' utilisation of scholarly electronic publication in federal University Libraries. These independent variables exist within the community of users i.e. the University.

Computer skills of lecturers could influence the level of utilisation of scholarly electronic publications. Any publication that is in electronic format requires that the user have computer skills to exploit information contained in them. Hence, it is proposed that computer skills of lecturers correlate with utilisation.

Institutional factors such as management commitment to the provision of computers, infrastructure and staff training could facilitate utilization of scholarly

electronic publications. If university's authority could improve on institutional factors lecturers utilization of scholarly electronic publications may be improved. Therefore, it is also proposed that institutional factors are determinants of utilisation.

Usefulness i.e. the relevance of the content of scholarly electronic publications encourages their use by lecturers. Once the contents are relevance, reliable, and timely lecturers will go for them. Thus, usefulness may determine utilisation.

Usability i.e. ease-of-use of scholarly electronic publication is a determinant of utilisation. If scholarly electronic publications are difficult to navigate and learn, time will be wasted during the process of utilisation and users will be discouraged from using them. Therefore, usability of scholarly electronic publications may correlate with their utilisation. In figure 2.1, utilisation is the consequence i.e. dependent variables. The interaction of the antecedent factors (Computer skills of lecturers, institutional factors, usefulness and usability) and utilisation (consequences) will indicate the level of utilisation of scholarly electronic publications. This will provide feedback to the environment to reshape or modify the antecedent factors.

Second, it is proposed that the combined influence of computer skills of lecturers, institutional factors, usefulness and usability will determine utilisation of scholarly electronic publications among lecturers' in federal universities in Nigeria.

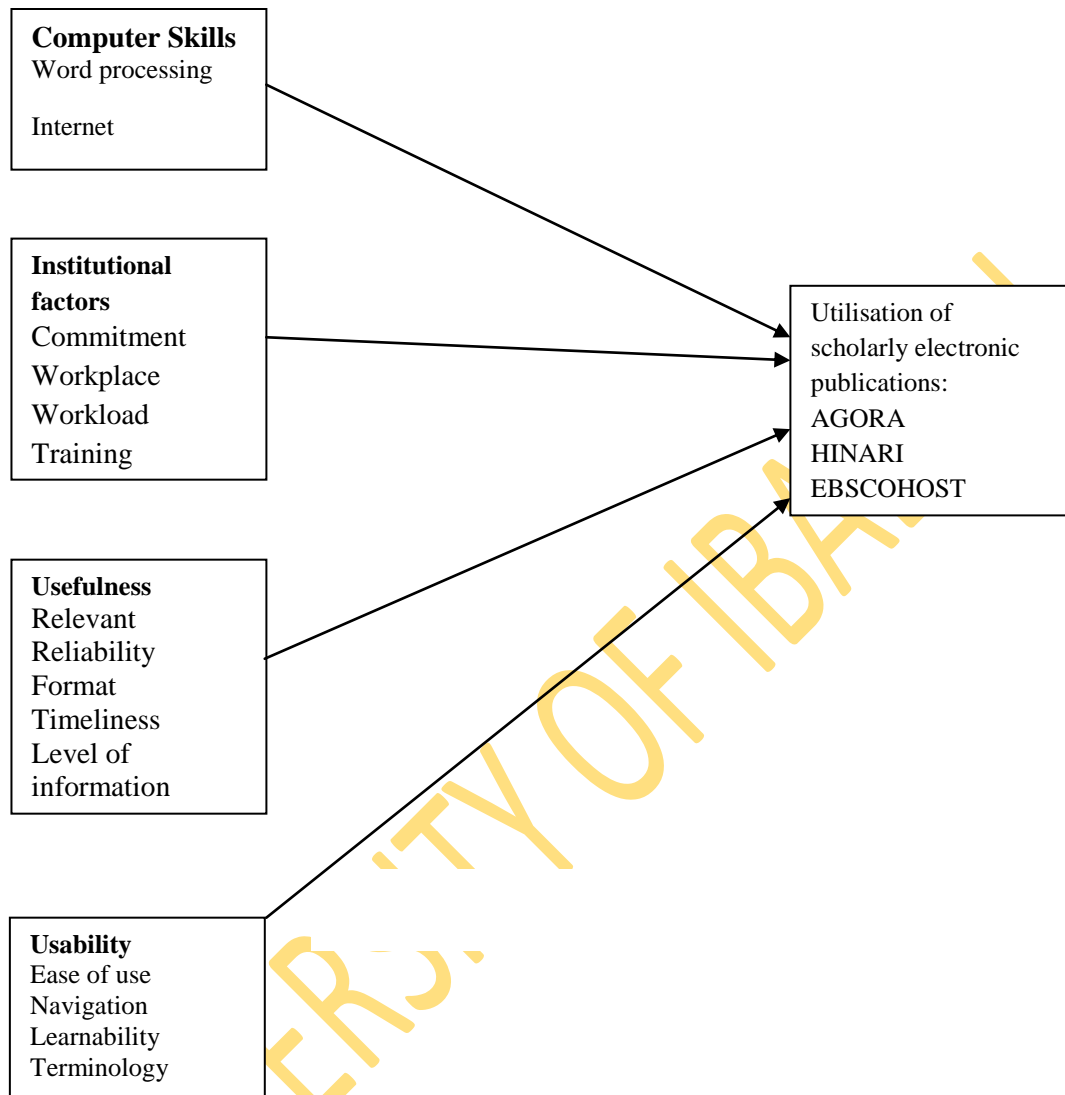


Fig. 2.1. Conceptual framework of convergent factors of E-publication utilisation (constructed by the Researcher)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter described the method and procedure that was adopted for this study under the following sub-headings: research design, population of the study, sample and sampling procedure, research instruments, validity and reliability of instrument, data collection procedure and method of data analysis.

3.2 Research design

The research design that was used for this study is the correlational type of survey research design. The purpose of correlational survey research is to establish what relationship exists between two or more variables. This means the linear relationship between the independent and dependent variables without any hint of attributing the effect of one variable on another (Salkind, 2006). Also the researcher has no control over the variable of interest and therefore, cannot manipulate them (Nworgu 2006). This research design is considered adequate for the study because the purpose of the study is to identify and understand the relationship that exists between the independent variables (computer skills of lecturers, institutional factors, usefulness and usability) and the dependent variable (utilisation of scholarly electronic publications). This means that, it is the researcher's intention to explain factors that influenced lecturers' level of utilisation of scholarly electronic publications in federal universities in Nigeria.

3.3 Population of the study

The population of this study was, six thousand one hundred and sixth eight (6168) lecturers in the six federal universities selected for this study. (Table 3.1)

Table 3.1 Universities selected for the study and population of lecturers

Selected University	Population	Sample 32.5%
Ahmadu Bello University, Zaria	1499	488
Bayero University, Kano	581	188
Obafemi Awolowo University, Ile-Ife	1084	352
University of Ibadan, Ibadan	1173	380
University of Jos, Jos	801	260
University of Port Harcourt, Port Harcourt	1030	336
Total	6168	2004

Source: NUC (2009). Weekly bulletin, 4(9), 11-13

3.4 Sample and sampling procedure

The sampling techniques used in this study are: purposive, quota, proportionate and accidental. Six (6) universities were purposively selected from twenty-eight (28) federal universities in Nigeria. They were recipients of external donor (MacArthur/Carnegie Foundation) support to develop ICT initiatives in their university libraries. The universities are; Ahmadu Bello University, Zaria, Bayero University, Kano, Obafemi Awolowo University, Ile-Ife, University of Ibadan, Ibadan, University of Jos, Jos, and University of Port Harcourt, Port Harcourt.

Four (4) faculties were purposively selected. The faculties are common to the six federal universities used for this study. The faculties are: Education, Arts/Humanity; Social sciences and Sciences.

The proportionate sampling technique was employed to select a sample size of 2,004 lecturers from six (6) universities. A sampling fraction of 32.5% was used to determine respondents from each university. Using the quota sampling, a proportion of 501 was assigned to each of the four faculties in the six universities. The accidental (availability) sampling was employed to select each respondent from the quota allotted to each of the four faculties. Table 3.2 shows the selected universities, faculties and sample.

Table 3.2 Universities, faculties and sample

University and sample							
Faculty	ABU	BUK	OAU	UI	UNI JOS	UNI PORT	TOTAL
Education	122	47	88	95	65	84	501
Arts	122	47	88	95	65	84	501
Social Sciences	122	47	88	95	65	84	501
Sciences	122	47	88	95	65	84	501
Total	488	188	352	380	260	336	2004

Key: ABU-Ahmadu Bello University, Zaria; BUK-Bayero University, Kano; OAU-Obafemi Awolowo University, Ile-Ife; UI-University of Ibadan, Ibadan; UNI JOS-University of Jos, Jos and UNI PORT-University of Port Harcourt, Port Harcourt.

Consequently, a sample size of 2,004 was selected for the study. The figure represents approximately 32.5% of the target population of 6168 lecturers in the six selected federal universities in Nigeria. The sample is regarded as adequate based on

Seaberg (1988:254) and Grinnell and Williams (1990:127) who suggested, “In most cases a 10% sample should be sufficient for controlling for sampling error.”

3.5 Research instruments

Three research instruments were employed to collect data for the study. The instruments were: the questionnaire; observation checklist; and interview schedule. Five questionnaires were designed. The first questionnaire was tagged Computer Skills of Lecturers Questionnaire (CSLQ). It was divided into two sections. Section A collected respondents' personal information such as name of university, faculty, academic status and gender. Section B measured computer skills of the respondents such as ability to word process, send and receive e-mail and browse the Internet. Items were measured such that the respondents responded to each item freely with a range of four possible responses- strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD). The responses were scaled SA= 4, A=3, D=2 and SD =1.

The second questionnaire was titled Institutional Factors Questionnaire (IFQ). It was divided into two sections. Section A contained personal information of the respondent. Section B contained items on institutional factors like institutional ICT infrastructure, workload, work place environment, and training. Each item required the respondent to check one of the four alternative responses- strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD). In this four point continuum, a scale of 4,3,2 and 1 were assigned.

The third questionnaire was named Usefulness of Scholarly Electronic Publications Scale (USEPS). It has two sections. While section A was about the respondent's bio-data,

section B contained attribute of usefulness like relevance, reliability, format, level of information and timeliness. Items were scored on a scale of 4-1 with 4 for strongly agree, 3 for agree, 2 for disagree and 1 for strongly disagree.

The fourth questionnaire was captioned Usability of Scholarly Electronic Publications Instrument (USEPI). It has two sections. While section A was on the respondent's personal information section B contained usability attributes like ease of use, navigation, terminology, and learnability. Items were measured such that the respondents responded to each item freely with a range of four possible responses- strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD). The responses were scaled SA= 4, A=3, D=2 and SD =1.

The fifth questionnaire was tagged Utilisation of Scholarly Electronic Publications Questionnaire (USEPQ). It was made up of two sections. Section A was about the respondent's bio-data. Section B sought to know the frequency of utilizing scholarly electronic publications among the respondents. The items were scored on a scale of 4-1 (rating scale) with 4 for very often, 3 for often, 2 for occasionally and 1 for never.

Observation checklist was another instrument used in the study. The observation checklist contained items on institutional factors like availability of computers, training and other infrastructure. Universities libraries and ICT laboratories were visited to observe how lecturers used facilities such as computers, printers, and availability of electricity supply. Also, observed were lecturers using Scholarly Electronic Publications in the libraries. The researcher spent one day in each library of the six universities.

Interview schedule was also used for data collection in the study. The interview schedule contained items on computer skills of lecturers; institutional factors, usefulness, usability and utilisation of SEP. Interview items were measured in way that respondents answered “Yes”- meaning agreement or “No”- meaning disagreement. Twenty-four lecturers were interviewed. One from each of the faculties in the six universities selected for the study. Accidental sampling was used to select the respondents.

3.6 Validity and reliability of instruments

The developed research instruments-questionnaire, observation checklist and interview guide were given to the researchers’ supervisor and other experts in the Department of Library, Archival and Information Studies (LARIS), University of Ibadan, Ibadan, for their judgment to establish content validity. The reliability of the questionnaires was assessed using the Pearson correlation coefficient. The test-retest method of reliability was employed using 30 lecturers at the University of Benin, Benin. The reliability coefficient of each of the five questionnaires was: Computer skills Questionnaire ($r=0.95$); Instructional factors Questionnaire ($r=0.79$); Usefulness of Scholarly Electronic Publications Scale ($r =0.85$); Usability of Scholarly Electronic Publications Instrument ($r=0.93$); and Utilisation of Scholarly Electronic Publications Questionnaire ($r=0.96$). The split-half method was used to determine the reliability of the observation checklist and a reliability coefficient of $r = 0.91$ was obtained. The reliability of the interview schedule was done using the test-retest method and a reliability coefficient of $r = 0.85$ was obtained.

3.7 Data collection procedure

The researcher and four research assistants administered the questionnaire on the respondents. The researcher employed the services of four-trained research assistants to administer the questionnaire to the respondents. The research assistants were instructed to report to the faculty's representatives/officers to introduce them to the lecturers. Also, they were instructed to administer the questionnaire to the lecturers in the faculties of Arts, Education, Sciences and Social Sciences in the respective universities under study. They were advised to respect the privacy of the respondents and never to tamper with their responses. They distributed the questionnaire to the lecturers during faculty meetings in the various universities under study and this exercise lasted for a period of three months. Finally, the researcher made multiple follow-up contacts to the four-trained research assistants by telephone calls and email to encourage high responses from the lecturers.

Observation of the respondents utilizing SEP at the library and or ICT center was recorded in the observation checklist. The researcher only, conducted the interview after gaining the consent of the respondents. The interview was tape recorded to ensure adequate report writing.

3.8 Data analysis

Data generated were analysed using descriptive and inferential statistics. Simple percent, mean and standard deviation types of descriptive statistics were employed to analyse the research questions raised in the study. The Pearson-r type of inferential statistic was used to analyse and test hypotheses 1 to 4 at 0.05 level of significance. The multiple regression analysis was used to test hypothesis 5 and answer research question 7

at 0.05 level of significance. Qualitative data collected from interview and observation were subjected to content analysis.

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CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter contained the results of the study. It is divided into four parts. The first part reported the demographic variables of the respondents. The second part reported on the answers to research questions. The third part reported on testing of hypotheses while the fourth part concerned the discussion of findings.

4.2 Questionnaire administration and response rate

A total of 2004 copies of questionnaires were distributed and 1403 (70%) were returned (Table 4.1). The response rate (70%) is considered adequate for the study because the standard and acceptable response rate for most studies is 60% (Malaney, 2002, and Evans, Peterson & Demark-Wahnefried, 2004, as cited in Dulle, Minish-Majanja & Cloete, 2010).

Table 4.1 Response rate

University	No. of copies distributed	No. of copies returned	Response rate (%)
ABU	488	298	14.87
BUK	188	141	7.03
OAU	352	306	15.27
UI	380	217	10.83
UNIJOS	260	201	10.03
UNIPORT	336	240	11.97
Total	2004	1403	70

4.3 Demographic variables of respondents

The faculties of respondents are shown in Fig. 4.1. The results in Fig. 4.1, showed that the faculty of education had the highest respondents 455(32.4%), it is followed by the faculty of arts 370(26.4%), and the faculty of sciences 356(25.4%). The faculty of social sciences has the least respondents 222(15.8%).

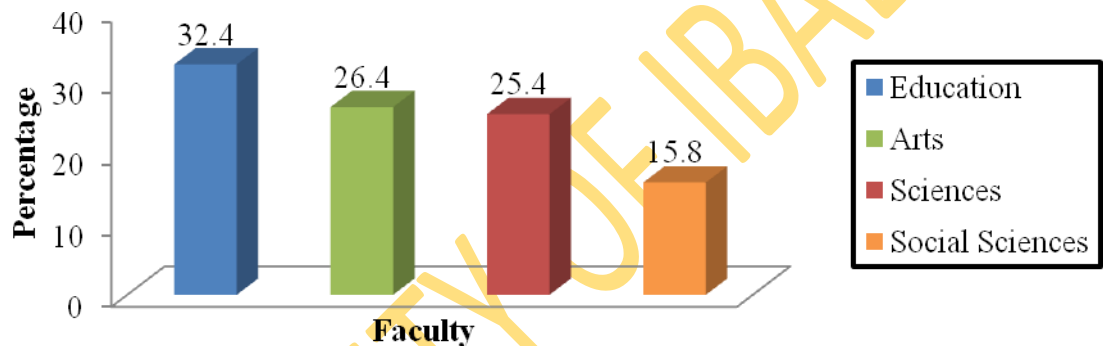


Fig. 4.1 Distribution of respondents by faculty

The academic status of the respondents is shown in Fig. 4.2. The result showed that majority of the respondents were graduate assistants 309(22.0%), this is followed by assistant lecturers 261(18.6%) and senior lecturers 258(18.4%). Professors constituted the least respondents 37(2.6%).

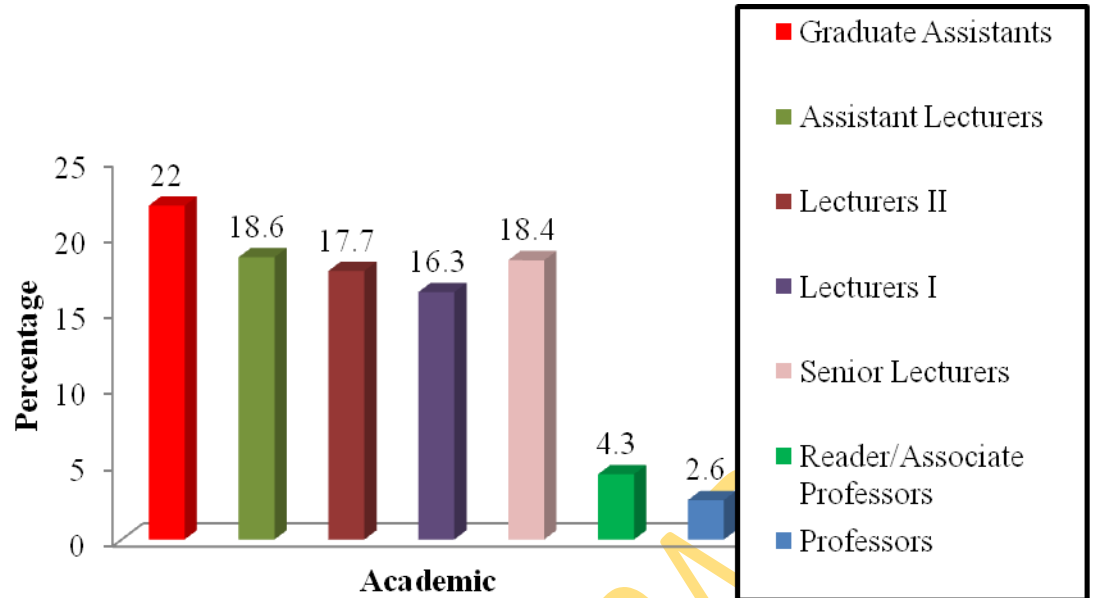


Fig. 4.2 Academic status of the respondents

The gender of respondents is as shown in Fig. 4.3. It could be seen from Fig 4.3 that there are more male 938 (66.9%) than female 465 (33.1%) lecturers in the study.

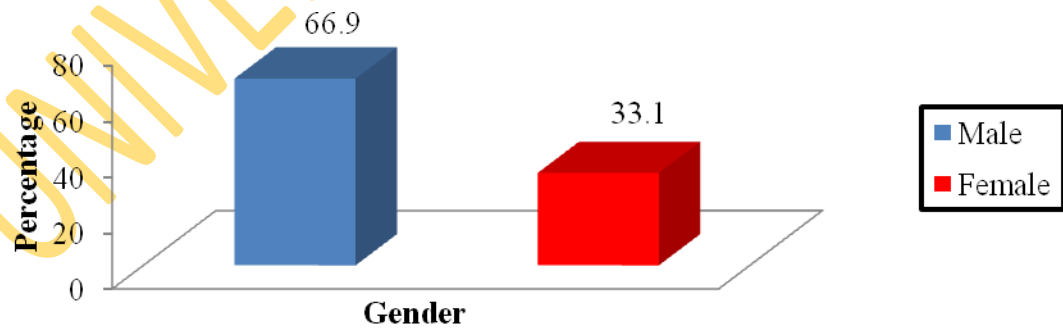


Fig. 4.3 Gender of the respondents

4.4 Answers to research questions

Answers to the research questions formulated to guide the study are reported in this section.

Research question 1 What are the types of scholarly electronic publications available in federal university libraries that lecturers can utilize for research?

To ascertain the types of scholarly electronic publications in federal university libraries, the respondents (head of systems units) were requested to indicate the scholarly electronic publications that are available in their libraries. Their responses are shown in Table 4.2.

Table 4.2 Available scholarly electronic publications in federal university libraries in Nigeria

Scholarly Electronic Publications		Universities					
		ABU	BUK	OAU	UI	UNIJOS	UNIPORT
1	AGORA	√	√	√	√	√	√
2	AJOL	√			√	√	
3	BIOMED CENTRAL	√		√	√	√	
4	BMJ PUBLISHING GROUP	√			√		
5	DOAJ	√	√	√	√	√	√
6	EBSCOHOST	√	√	√	√	√	√
7	E-JOURNAL.ORG	√			√		
8	HIGHWIRE ARCHIVE	√		√	√		√
9	HINARI	√	√	√	√	√	
10	GLOBAL DEVELOPMENT NETWORK-JOURNAL SERVICES	√			√		
11	JSTOR	√	√	√	√	√	√
12	OARE				√	√	√
13	Transactions of the American Mathematical Society				√		

14	Aluka Library	Digital	√			√		√
15	Bio One		√					
16	Oxford Journals	Online	√	√			√	√
Scholarly Publications		Electronic	Universities					
			ABU	BUK	OAU	UI	UNIJOS	UNIPORT
17	Popline		√			√	√	√
18	REPEC		√			√	√	√
19	SOURCE	OECD				√		
20	Zentralblatt Math					√		
21	OUP Journals	Online			√			
22	WiderNet Library	Digital	√		√			
23	MIT Press Journals				√			
24	DATAD Online				√			
25	PERI				√			
26	Pubmed Central		√		√	√		
27	SCIELO				√			
28	UWE Services	Library			√			
29	The Annals of Pharmacotherapy				√			
30	Nigerian Library	Virtual	√	√	√	√	√	√
31	INASP PERI					√		
32	ASSR: Arab Social Science Research		√			√		
33	INASP HEALTH LINKS		√			√		
34	British Library for Development Studies		√					
35	RFBR: Russian Federation for Basic Research		√					
36	Oxford Dictionary	Online	√				√	
37	ELSEVIER: Science Direct					√		
38	ERIC						√	
39	Medline		√	√	√	√	√	√
40	DATAD							√
41	Academic Research Premier		√	√	√	√	√	√
42	Business Source		√	√	√	√	√	√

	Premier						
43	MasterFile Premier	√	√	√	√	√	√
44	Health Source	√	√	√	√	√	√
45	WiderNet Digital Library			√			
Scholarly Electronic Publications		Universities					
		ABU	BUK	OAU	UI	UNIJOS	UNIPOINT
46	The Federalist			√			
47	Law Journals			√			

The result shows that there were 47 types of scholarly electronic publications in federal university libraries in Nigeria. Some of the e-publications are: AGORA, EBSCOHOST, HINARI, JSTOR, Nigerian virtual library, DOAJ, and HIGHWIRE ARCHIVE. Others were BIOMED, OARE, Aluka Digital Library, Oxford Online Journals, Popline and REPEC.

Research question 2 What are the computer skills possessed by lecturers in federal universities in Nigeria?

To determine the computer skills of lecturers they were requested to respond to some statements about their ability to use computer in the Internet environment. Their responses are presented in Table 4.3.

Table 4.3 Computer skills of lecturers in federal universities in Nigeria

S/N	Statements	SA	A	D	SD	Mean	S.D.	AVERAGE MEAN
1	I can use input devices like mouse/arrow key	917 65.4%	390 27.8%	58 4.1%	38 2.7%	3.56	.702	3.48
2	I can turn the computer, monitor, and printer on or off	901 64.2%	411 29.3%	29 2.1%	62 4.4%	3.53	.746	
3	I can save a file to a flash or to	865 61.7%	449 32.0%	59 4.2%	30 2.1%	3.53	.680	

S/N	Statements	SA	A	D	SD	Mean	S.D.
5	I can send, receive, print or save e-mail messages	846 60.3%	428 30.5%	66 4.7%	63 4.5%	3.47	.783
6	I can navigate the Internet/www using functional keys like back, forward, reload, stop, refresh, go home, etc	839 59.8%	419 29.9%	86 6.1%	59 4.2%	3.45	.789
7	I can launch any of the web browsers	779 55.5%	436 31.1%	96 6.8%	92 6.6%	3.36	.872

Criterion Mean = 2.50

The result showed that lecturers in the study possessed computer skills (mean 3.48 > criterion mean 2.50) such as word processing and Internet skills. I can use input devices ($\bar{X} = 3.56$; $SD = 3.53$). I can save to a file, flash or other location on the local or network environment ($\bar{X} = 3.53$; $SD = .74$), and I can print a document from the computer ($\bar{X} = 3.52$; $SD = .73$). Other computer skills possessed by the lecturers were: I can send, receive, or save e-mail message ($\bar{X} = 3.47$; $SD = .783$), I can navigate the Internet using functional keys like back, forward, refresh, etc ($\bar{X} = 3.45$; $SD = .789$) and I can launch any of the web browsers ($\bar{X} = 3.36$; $SD = .872$).

Research question 3 What are the institutional factors that facilitate lecturers' utilisation of scholarly electronic publications in deferral university libraries in Nigeria?

To identify the institutional factors that facilitate lecturers' utilisation of scholarly electronic publications in federal university libraries, lecturers were asked to respond to statements on conditions that facilitate their use of e-publications in the university libraries.

The lecturers' responses are presented in Table 4.4.

Table 4.4 Institutional factors that facilitated lecturers' utilisation of scholarly electronic publications in federal universities libraries in Nigeria

S/N	Statements	SA	A	D	SD	Mean	S.D.	AVERAGE MEAN
1	There are skilled ICT staff in the library	555 39.6%	596 42.5%	180 12.8%	72 5.1%	3.16	.838	2.71
2	There is alternative supply of electricity supply like generator or solar	553 39.4%	613 43.7%	151 10.8%	86 6.1%	3.16	.849	
3	There is quick response to network/connectivity problems in the library	207 14.8%	351 25.0%	503 35.9%	342 24.4%	2.30	.997	
4	There are adequate provision of computers, printers and other facilities	407 29.0%	470 33.5%	331 23.6%	195 13.9%	2.78	1.016	
5	The library environment is conducive to browse e-journals	407 29.0%	542 38.6%	280 20.0%	174 12.4%	2.84	.981	
6	Lecturers are aware of the availability of e-journals in the library	341 24.3%	626 44.6%	273 19.5%	163 11.6%	2.82	.932	
7	I started to use e-journals after informal interaction with colleagues	312 22.6%	530 37.8%	348 24.8%	213 15.2%	2.67	.985	
8	There is Internet access in my office, department and faculty	180 12.8%	207 14.8%	529 37.7%	487 34.7%	2.06	1.003	
9	I started to use e-journals after formal interaction with colleagues	87 6.2%	92 6.6%	578 41.2%	646 46.0%	1.73	.837	
10	Increased work load like teaching, and project supervision take more of my time	617 44.0%	708 50.5%	53 3.8%	25 1.8%	3.37	.664	
11	I am involved in too many administrative responsibility	642 45.8%	615 45.8%	92 6.6%	54 3.8%	3.32	.760	
12	Lecturers are trained on how to use e-journals in the library	293 20.9%	409 29.2%	497 35.4%	204 14.5%	2.56	.997	
13	Poor Internet connection	571	657	85	90	3.22	.823	

		40.7%	46.8%	6.1%	6.4%			
14	Download is usually slow	499 35.6%	676 48.2%	159 11.3%	69 4.9%	3.14	.803	

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S/N	Statements	SA	A	D	SD	Mean	S.D.	AVERAGE MEAN
16	The library is close to my office	431 30.7%	468 33.4%	335 23.9%	169 12.0%	2.17	.999	2.71
17	Cost of Internet access in the library is too high	346 24.7%	447 31.9%	401 28.6%	209 14.9%	2.34	1.008	
18	Printing charge in the library is too high	415 29.6%	401 28.6%	367 26.2%	220 15.7%	2.28	1.052	
19	E- journals are used for promotion in the university	74 5.3%	27 1.9%	625 44.5%	677 48.3%	3.36	.7652	
20	Registration of users at the unit where e-journals are used in the library	134 9.6%	129 9.2%	637 45.4%	503 35.9%	3.08	.910	
21	Closing time is too early	124 8.8%	120 8.6%	668 47.6%	491 35.0%	3.09	1.047	
22	Download is restricted to a number of article	609 43.4%	517 36.8%	267 19.0%	10 .7%	1.77	.775	
23	Download into flash and CD-Rom is allowed	604 43.1%	685 48.8%	60 4.3%	54 3.85%	1.69	.729	

Criterion Mean = 2.50

Institutional factors (mean = 2.71 > criterion mean 2.50) encouraged lecturers to utilize available scholarly electronic publications in libraries in federal universities in Nigeria. Institutional information and communication technology infrastructure (ICT), workplace, training, cost (access charges) and policy and rules and regulations are the institutional factors that facilitated lecturers' utilisation of scholarly electronic publications in federal universities libraries in Nigeria. There is high level provision of institutional information and communication technology infrastructure (ICT) by the universities and libraries management. There are skilled ICT staff in the library (\bar{X} = 3.16; SD=.838). There is epileptic electricity supply in the library (\bar{X} =3.16; SD=. 838), there is alternative supply of electricity like generator/solar (\bar{X} =3.16; SD= .849), there are adequate provision of computers, printers and other facilities (\bar{X} =2.78; SD=1.016). However, there was no quick response to network/connectivity problem in the library. There is quick response to network/connectivity problem in the library (\bar{X} =2.30; SD=.997).

The workplace (environment) of lecturers enhanced their utilisation of e-journals available in the university library. The library environment is conducive to browse e-journals ($\bar{X}=2.84$; $SD=.981$), lecturers are aware of the availability of e-journals in the library ($\bar{X}=2.82$; $SD=.932$) and I started to e-journals after informal interaction with colleagues ($\bar{X}=2.67$; $SD=.985$). However, lecturers have no Internet access in their offices, departments and faculties. There is no Internet access in my office, department and faculty ($\bar{X}=2.06$; $SD=1.003$).

However, workload, and access (physical and electronic) did not facilitate lecturers' utilisation of e-publications. The result shows that increased workload of lecturers did not encourage them to use e-publications in the library. The table shows that increased workload like teaching and project supervision take more of my time ($\bar{X}=3.37$; $SD=.644$) while I am involved in too many administrative responsibilities ($\bar{X}=3.32$; $SD=.760$).

On training of lecturers to facilitate use of scholarly electronic publications in the library, the study found that training was partially carried out by management of the libraries. The table shows that 204 (14.5%) of the respondents strongly disagreed, 497 (35.4%) disagreed, 409 (29.2%) agreed while 293 (20.9%) strongly agreed. While 50% of the lecturers said they were trained about 49.9% of them believed that they had not received training in the library.

On access to the contents of e-journals in the library, the result showed that the lecturers had poor/inadequate access to e-publications that were in the holdings of the library. The table shows poor Internet connection ($\bar{X}=3.22$; $SD=.823$), download was

usually slow ($\bar{X}=3.14$; $SD=.803$), the library servers were down most times ($\bar{X}=2.95$; $SD=.959$) and the library is close to my office ($\bar{X}=2.17$; $SD=.999$). The last items means score ($\bar{X}=2.17$) is below the standard mean score of 2.50. This means that the library is far away from the lecturers' offices. Hence, supporting the result that lecturers have poor access to e-journals.

The result showed cost (charges) of accessing e-journals in the libraries was low and may be affordable to lecturers. Cost of Internet access in the library was too high ($\bar{X}=2.34$; $SD=1.008$), while printing charges in the library was too high ($\bar{X}=2.26$; $SD=1.052$). This means that low cost facilitated use of e-journals by lecturers.

The university policy and library rules and regulations to guide scholarly electronic publications use were facilitated lecturers' use of e-publications (Table 4.4). The table shows that e-journals were used for promotion in the university ($\bar{X}=3.36$; $SD=.765$), registration of users at the unit where e-journals are used in the library ($\bar{X}=3.08$; $SD=.910$) and download into flash is allowed ($\bar{X}=1.67$; $SD=.78$). However, the lecturers noted that closing time is too early and download into flash are not allowed.

Research question 4 What is the level of usefulness of scholarly electronic publications to lecturers in federal universities in Nigeria?

To determine the level of usefulness of scholarly electronic publications to lecturers, they were asked to respond to some statements on usefulness. The responses collected from the lecturers are shown in Table 4.5.

Table 4.5 Usefulness of scholarly electronic publications

S/N	Statements	SA	A	D	SD	Mean	S.D.	AVERAGE MEAN
1	The content of e-resources is related to my research topic	471 33.6%	588 41.9%	180 12.8%	164 211.7%	2.97	.965	3.17
2	E-journals are relevant to my research topic	481 34.3%	609 43.4%	150 10.7%	163 11.6%	3.00	.957	
3	I like e-journals in PDF format	553 39.4%	694 49.5%	61 4.3%	95 6.8%	3.22	.814	
4	I like e-journals in HTML format	476 33.9%	645 46.0%	140 10.0%	142 10.1%	3.04	.918	
5	E-resources contents are trustworthy	494 35.2%	811 57.8%	60 4.3%	38 2.7%	3.26	.662	
6	E-journals are credible	480 34.2%	836 59.6%	40 2.9%	47 3.3%	3.25	.666	
7	E-resources contents are authoritative	469 33.4%	821 58.5%	64 4.6%	49 3.5%	3.22	.687	
8	I prefer to use full-text article in e-journals	565 40.3%	762 54.3%	32 2.3%	44 3.15%	3.32	.671	
9	I like to use bibliographic data of e-journals	472 33.6%	786 56.0%	89 6.3%	56 4.0%	3.19	.723	
10	I like to use abstracts to article found in e-journals	461 32.9%	723 51.5%	152 10.8%	67 4.8%	3.12	.783	
11	The content of e-journals are current	537 38.3%	766 54.6%	53 3.8%	47 3.3%	3.28	.691	

Criterion Mean = 2.50

The result showed that lecturers found the contents of scholarly electronic publications useful-relevant, reliable and timely to their research with $\bar{X} = 3.17$.

The relevance of e-journals to lecturers was high. The content of e-resources was related to my research topic ($\bar{X} = 2.97$; $SD = .965$), while e-journals were relevant to my research topic ($\bar{X} = 3.00$; $SD = .957$).

The result showed that the lecturers preferred to read e-journals in both PDF format ($\bar{X} = 3.22$; $SD = .814$) and HTML format ($\bar{X} = 3.04$; $SD = .918$).

The respondents indicated high level of reliability of the contents of scholarly electronic publications. Also, e-journals contents were trustworthy ($\bar{X} = 3.26$; $SD = .662$), e-journals contents were credible ($\bar{X} = 3.25$; $SD = .666$) while e-publications contents were authoritative ($\bar{X} = 3.22$; $SD = .687$). Therefore, the contents of scholarly electronic publications available in federal universities libraries were reliable.

On the level of information, majority of the lecturers' utilized information from full-text, bibliographic data and abstract of e-journals articles available in the libraries' holdings. The table shows that I prefer to use full-text articles in e-journals ($\bar{X} = 3.32$; $SD = .671$), I like to use bibliographic data of e-journals ($\bar{X} = 3.19$; $SD = .723$) and I like to use abstract to articles found in e-journals ($\bar{X} = 3.12$; $SD = .783$). The essence of this was that lecturers use information from any level of information found in scholarly electronic publications to conduct research.

On timeliness, the result showed that lecturers' found the contents of scholarly electronic publications as timely. Also, 527(38.3%) of the respondents strongly agreed, 766(54.6%) agreed, 53(3.8%) disagreed while 47(3.35) strongly disagreed. In effect, lecturers found the contents of e-journals timely and current to use for research.

Research question 5 What is the level of usability (ease of use) of scholarly electronic publications used by lecturers in federal universities in Nigeria?

To determine the level of usability of scholarly electronic publications, the respondents were asked to respond to statements of usability. The responses are presented in Table 4.6.

Table 4.6 Usability of scholarly electronic publications

S/N	Statements	SA	A	D	SD	Mean	S.D.	AVERAGE MEAN
1	They are easy to use	628 44.8%	675 48.1%	58 4.1%	42 3.0%	3.35	.699	3.14
2	They are user friendly	580 41.3%	723 51.5%	67 4.8%	33 2.4%	3.32	.674	
3	I found it easy to move from one page to another	520 37.1%	783 55.8%	37 2.6%	63 4.5%	3.25	.716	
4	I could move from one article to another with the links found in work cited	518 36.9%	758 54.0%	64 4.6%	63 3.5%	3.23	.735	
5	I could move around e-journals with ease	497 35.4%	769 54.8%	73 5.2%	64 4.6%	3.21	.738	
6	I found terminologies used in the e-journals easy and clear to understand	380 27.1%	649 46.3%	184 13.1%	190 13.5%	2.87	.963	
7	I found consistency in the use of terms in the database	382 27.2%	632 45.0%	200 14.3%	189 13.5%	2.86	.967	
8	The information provided by e-journals were easily understood by me	498 35.5%	777 55.4%	48 3.4%	80 5.7%	3.21	.758	
9	It is easy to learn how to use e-journals available in the library	505 36.0%	693 49.4%	156 11.1%	49 3.5%	3.18	.761	
10	Help messages on the screen are usually helpful during search	430 30.6%	671 47.8%	145 10.3%	157 5.7%	2.98	.926	

Criterion Mean = 2.50

The result showed that lecturers in federal universities in Nigeria found scholarly electronic publications in the library easy to use and user friendly ($\bar{X} = 3.14$). There was high usability of scholarly electronic publications among lecturers. They are easy to use ($\bar{X}=3.35$; $SD=.699$), and they are user friendly ($\bar{X} =3.32$; $SD=.674$).

On navigation, the result showed that the lecturers can navigate the contents of e-publications with ease. I found it easy to move from one page to another ($\bar{X}=3.25$; $SD=.716$), I could move from one article to another with the links found in work cited ($\bar{X} =3.23$; $SD=.735$). This implies that lecturers have high navigational skills.

On terminology, the result showed that the lecturers understood and found consistency in the terms used in the databases. Also, the result showed that I found terminologies used in e-journals easy and clear to understand ($\bar{X} =2.87$; $SD=.963$) while I found consistency in the use of terms used in the database were simple and easy to understand.

The result showed that learnerbility of e-publications is easy for lecturers. In the Table, it could be seen that it is easy to learn how to use e-journals available in the library ($\bar{X} =3.18$; $SD=.761$) while help messages on the screen are usually helpful during search ($\bar{X} =2.98$; $SD=.926$). Generally, it seemed that the scholarly electronic publications available in the library have good ease of use, easy navigation without dead links, easily understood terms and simple to learn.

Research question 6 To what extents do lecturers in federal universities utilize scholarly electronic publications?

To determine the extent of utilisation of scholarly electronic publications by lecturers, they were made to indicate the frequency of utilisation of scholarly electronic publications available to their university libraries. Lecturers' responses are presented in Table 4.7.

Table 4.7 Frequency of utilisation of scholarly electronic publications available in federal university libraries by lecturers

S/N	E-publication	Very often	Often	Occasionally	Never	Mean	S.D.	Average Mean
1	JSTOR	216 (15.4%)	154 (11.0%)	243 (17.3%)	790 (56.3%)	1.85	1.126	
2	Encyclopedia Online	121 (8.6%)	234 (16.7%)	325 (23.2%)	723 (51.5%)	1.82	.998	
3	Library Website	134 (9.6%)	177 (12.6%)	212 (15.1%)	880 (62.7%)	1.69	1.020	
4	GLOBAL DEVELOPMENT NETWORK-JOURNAL SERVICE	120 (8.6%)	157 (11.2%)	276 (19.7%)	850 (60.6%)	1.68	.978	
5	AJOL	99 (7.1%)	173 (12.3%)	297 (20.8%)	839 (59.8%)	1.67	.945	
6	ELSEVIER: Science Digest	89 (6.3%)	190 (13.5%)	281 (20.0%)	843 (60.1%)	1.66	.936	
7	AGORA	85 (6.1%)	182 (13.0%)	297 (21.2%)	839 (59.8%)	1.65	.922	
8	E-JOURNAL.ORG	61 (4.3%)	214 (15.3%)	279 (19.9%)	849 (60.5%)	1.63	.894	
9	DOAJ	83 (5.9%)	164 (11.7%)	244 (17.4%)	912 (65.0%)	1.59	.912	

S/N	E-publication	Very often	Often	Occasionally	Never	Mean	S.D.
10	ACM DIGITAL LIBRARY	57 (4.1%)	178 (12.7%)	284 (20.2%)	884 (63.0%)	1.58	.861
11	ISI Web of science	92 (6.6%)	168 (12.0%)	195 (13.9%)	948 (67.6%)	1.58	.937
12	MCB: Emerald Library	100 (7.1%)	141 (10.0%)	227 (16.2%)	935 (66.6%)	1.58	.935
13	HINARI	78 (5.6%)	133 (9.5%)	204 (14.5%)	948 (67.6%)	1.55	.901
14	SAGE	72 (5.1%)	161 (11.5%)	230 (16.4%)	940 (67.0%)	1.55	.886
15	ACS PUBLICATION	57 (4.1%)	156 (11.1%)	281 (20.0%)	909 (64.8%)	1.54	.845
16	Ebrary	48 (3.4%)	179 (12.8%)	252 (18.0%)	924 (65.9%)	1.54	.842
17	EBSCOHOST	68 (4.8%)	162 (11.5%)	223 (15.9%)	950 (67.7%)	1.54	.878
18	SCIENCE	65 (4.6%)	183 (13.0%)	196 (14.0%)	959 (68.4%)	1.54	.888
19	ERIC	69 (4.9%)	150 (10.7%)	231 (16.5%)	953 (67.9%)	1.53	.871
20	PCT	95 (6.8%)	124 (8.8%)	215 (15.3%)	969 (69.1%)	1.53	.912
21	REPEC: RESEARCH PAPERS IN ECONOMICS	67 (4.8%)	163 (11.6%)	217 (15.5%)	956 (68.1%)	1.53	.877
22	BIOMED CENTRAL	67 (4.8%)	137 (9.8%)	250 (17.8%)	949 (67.6%)	1.52	.856
23	BMJ PUBLISHING GROUP	66 (4.7%)	143 (10.2%)	239 (17.0%)	955 (68.1%)	1.52	.858
24	ABC CLIO	58 (4.1%)	128 (9.1%)	291 (20.7%)	926 (66.0%)	1.51	.825
25	American mathematical society	68 (4.8%)	125 (8.9%)	243 (17.3%)	967 (68.9%)	1.50	.848
26	HMP	78 (5.6%)	133 (9.5%)	204 (14.5%)	988 (70.4%)	1.50	.880
27	ABI INFORM	38 (2.7%)	137 (9.8%)	295 (21.0%)	933 (66.5%)	1.49	.780

1.55

S/N	E-publication	Very often	Often	Occasionally	Never	Mean	S.D.
28	CHEMLIST	49 (3.5%)	169 (12.0%)	201 (14.3%)	984 (70.1%)	1.49	.837
29	Helecon	68 (4.8%)	130 (9.3%)	217 (15.5%)	988 (70.4%)	1.49	.852
30	OARE	86 (6.1%)	117 (8.3%)	200 (14.3%)	1000 (71.3%)	1.49	.886
31	Pop line	74 (5.3%)	124 (8.8%)	220 (15.7%)	985 (70.2%)	1.49	.862
32	PROQUEST DIRECT	73 (5.2%)	134 (9.6%)	204 (14.5%)	992 (70.7%)	1.49	.868
33	EEBO	45 (3.2%)	162 (11.5%)	201 (14.3%)	995 (70.9%)	1.47	.820
34	HIGHWIRE ARCHIVE	61 (4.3%)	139 (9.9%)	199 (14.2%)	1004 (71.6%)	1.47	.842
35	QUESTIA	54 (3.8%)	142 (10.1%)	216 (15.4%)	991 (70.6%)	1.47	.826
36	AMICO	52 (3.7%)	136 (9.7%)	221 (15.8%)	994 (70.8%)	1.46	.816
37	Zentralblatt math	46 (3.3%)	122 (8.7%)	215 (15.3%)	1020 (72.7%)	1.43	.785
38	Silver platter	33 (2.4%)	142 (10.1%)	213 (15.2%)	1015 (72.3%)	1.42	.767
39	SOURCE OECD	32 (2.3%)	129 (9.2%)	208 (14.8%)	1034 (73.7%)	1.40	.749

Criterion Mean = 2.50

The result showed that lecturers' utilisation of scholarly electronic publications available in federal universities libraries was low ($\bar{X} = 1.55$). The Table showed that the proportion of respondents who never used scholarly electronic publications in the library ranged from 790(56.3%) to 1034(73.79%), while very frequently ranged from 32(2.3%) to 216(15.4%). This implied that, there was low level of utilisation of scholarly electronic publications in federal university libraries by lecturers.

Research Question 7 What is the relative contribution of computer skills, institutional factors, usefulness and usability to lecturer' utilisation of scholarly electronic publications for research in federal universities in Nigeria?

To ascertain the relative contribution of each of the independent variables on the dependent variable, a post-hoc was done on the regression analysis. Table 4.8 showed the relative contribution of each of the independent variables to the dependent variable.

Table 4.8 Relative effects of computer skills, institutional factors, usefulness and usability on utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria

Model	Unstandardized Coefficient		Standardized Coefficient	T	Sig.
	B	Std. Error			
(Constant)	76.656	3.963		19.345	0.00
Computer Skills	-1.213	.140	-.246	-8.640	0.00
Institutional Factors	.113	.054	.079	2.102	0.36
Usefulness	-.111	.114	-.041	-.978	.328
Usability	.382	.102	.144	3.752	0.00

The result showed that Usability (B= .144, p<.05) had the highest effect, it is followed by institutional factor (B=.079. P<.05); and computer skills (B= -.246, P<.05) and usefulness (B= -.41, P>.05) made the list contribution.

Respondents were asked to indicate the time (hours) spent each time they visited the library to utilise scholarly electronic publications. The results in Fig. 4.4 showed that majority 415 (29.6%) of the respondents spent 1hr, followed by 311 (22.2) who spent less than 1hr, while few respondents 38 (2.7%) spent 5hrs.

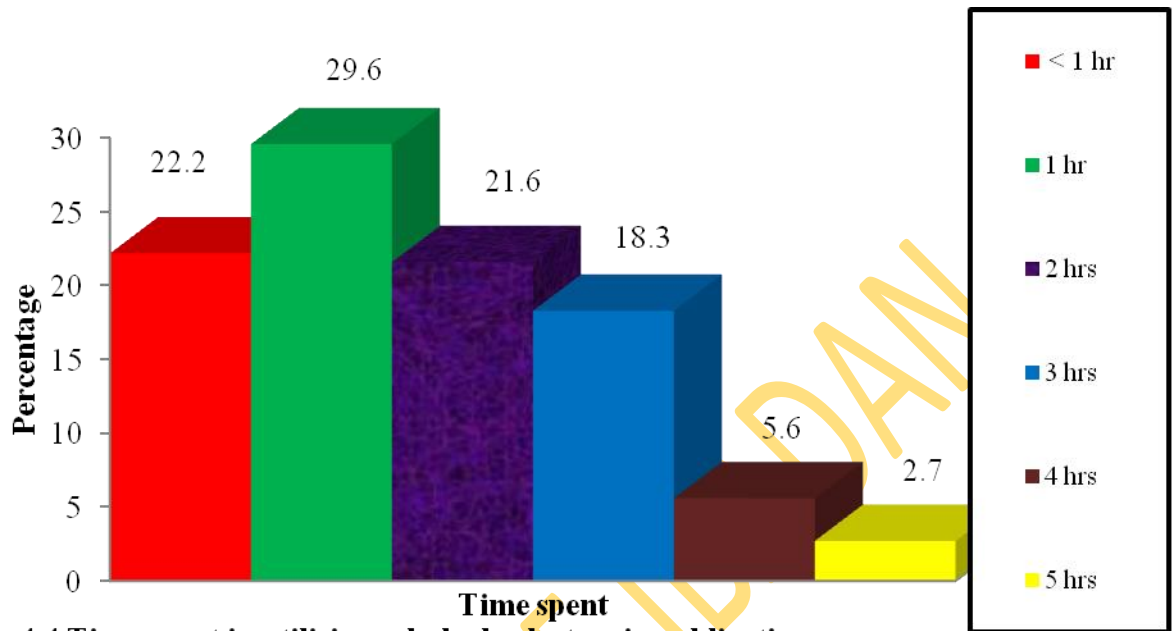


Fig. 4.4 Time spent in utilising scholarly electronic publications

On research activities, the respondents were requested to indicate the research activities for which they use scholarly electronic publications. Search for relevant literature 1060 (75.6%) came first, followed by published articles and books 925 (65.95%) while collaboration with colleagues 582 (41.5%) came last. The results had shown that the respondents used scholarly electronic publications to search for relevant literature and publish articles and books. However, the respondents did not seem to use SEP for collaboration with colleagues and bibliographic citation and referencing.

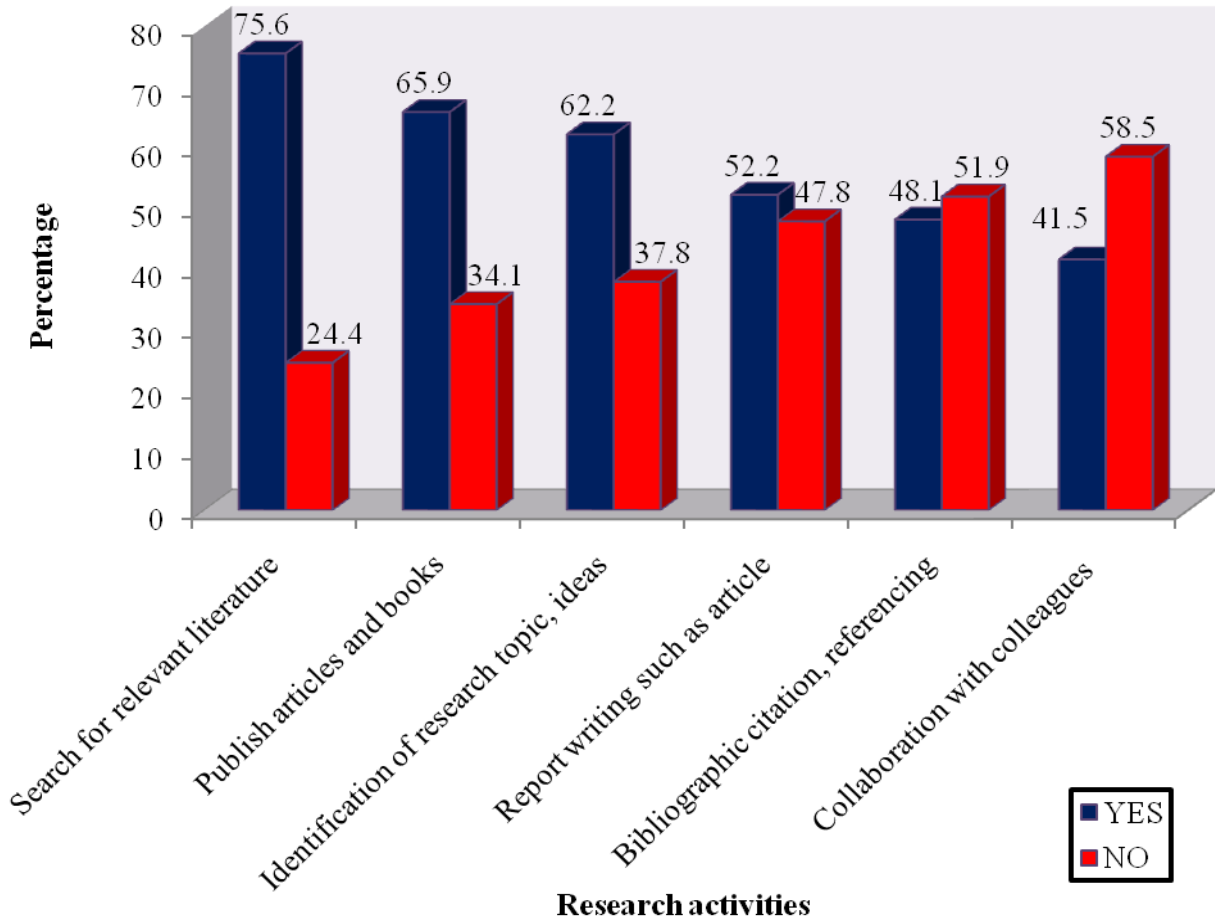


Fig. 4.5 Research activities for utilising scholarly electronic publication/databases

4.5 Testing of hypotheses

This section of the research reports the results of the testing of null hypotheses formulated to guide the study. The hypotheses were tested at 0.05 level of significance.

Hypothesis 1. There is no significant relationship between computer skills and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.

To establish the relationship between computer skills and utilisation of scholarly electronic publications, the scores of computer skills of lecturers were correlated with the frequency of utilisation of scholarly electronic publication and the result is shown in Table 4. 9.

Table 4.9 Correlation of computer skills and utilisation of SEP by lecturers

Correlation		Utilisation of scholarly e-journal	Computer skills
Utilisation of scholarly e-journal	Pearson Correlation	1.000	-.187**
	Sig. (2-tailed)		.000
	N	1403	1403
Computer skills	Pearson Correlation	-.187**	1.000
	Sig. (2-tailed)	.000	
	N	1403	1403

** . Correlation is significant at the 0.05 level (2-tailed).

The result of the correlation showed that there is a negative significant relationship between utilisation of scholarly electronic publications and computer skills of lecturers in federal universities in Nigeria ($r = -.187^{**}$, $N=1403$, $P<0.05$). Even though the correlation is negative yet it is significant hence, the null hypothesis is rejected. Therefore, there is a negative relationship between computer skills of lecturers and utilisation of scholarly electronic publications in federal university in Nigeria. Since there is a negative significant relationship, it implies that as the computer skills of lecturers increases their utilisation of scholarly electronic publications available in federal universities libraries decreases.

Hypothesis 2. There is no significant relationship between institutional factors and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.

To show the relationship that exists in hypothesis 2, a correlation was done on the scores of institutional factors and utilisation of electronic publications.

Table 4.10 Relationship between Institutional factors and utilisation of scholarly electronic publications

Correlation		Utilisation of scholarly e-journal	Institutional factors
Utilisation of scholarly e-journal	Pearson Correlation	1.000	.058*
	Sig. (2-tailed)		.030
	N	1403	1403
Institutional factors	Pearson Correlation	.058*	1.000
	Sig. (2-tailed)	.030	
	N	1403	1403

*. Correlation is significant at the 0.05 level (2-tailed).

Table 4.10 shows that there is positive significant relationship between utilisation of scholarly electronic publications and institutional factors ($r=.058^*$, $N=1403$, $P<.05$). Thus, the null hypothesis is rejected. This means that there is a significant relationship between institutional factors and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria. In other words, institutional factors predict utilisation of scholarly electronic publications available in federal university libraries in Nigeria. Hence, as institutional factors improve, lecturers' utilisation of SEP will improve.

Hypothesis 3. There is no significant relationship between usefulness and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.

To test the hypothesis 3, lecturers' responses on usefulness was correlated with the scores on utilisation of electronic publications. The result is shown in Table 4.11.

Table 4.11 Correlation of usefulness and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria

Correlation		Utilisation of scholarly e-journal	Usefulness
Utilisation of scholarly e-journal	Pearson Correlation	1.000	.017
	Sig. (2-tailed)		.520
	N	1403	1403
Usefulness	Pearson Correlation	.017	1.000
	Sig. (2-tailed)	.520	
	N	1403	1403

The result showed that the correlation obtained between the two variables was not significant ($r=.017$, $N= 1403$, $P> .05$). Thus, the null hypothesis is accepted. In essence, there is no significant relationship between usefulness and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria. Usefulness is not a determinant of utilisation of scholarly electronic publications in federal university libraries. In effect, improvement in the usefulness of SEP will not bring about increase in their utilisation among lecturers.

Hypothesis 4. There is no significant relationship between usability (ease of use) and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.

To test hypothesis 4, the frequency of lecturers' scores on usability was cross tabulated with the score on utilisation of scholarly electronic publications.

Table 4.12 Correlation of usability and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria

Correlation		Utilisation of scholarly e-journal	Usability
Utilisation of scholarly e-journal	Pearson Correlation	1.000	.080**
	Sig. (2-tailed)		.003
	N	1403	1403
Usability	Pearson Correlation	.080**	1.000
	Sig. (2-tailed)	.003	
	N	1403	1403

** . Correlation is significant at the 0.05 level (2-tailed).

In Table 4.12, it can be seen that there is a positive significant relationship between usability and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria ($r=.080^{**}$, $N=1403$, $P<.05$). The relationship tested significant hence, the null hypothesis is rejected. Consequently, there is a significant relationship between usability and utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria. This implies that usability is a determinant of utilisation of scholarly electronic publications that are available in federal universities libraries in

Nigeria. In effect, as usability (ease of use) improves utilisation of scholarly electronic publications will increase.

Hypothesis 5. Computer skills of lecturers, institutional factors, usefulness, and usability will not significantly predict utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.

To test hypothesis 5, a multiple regression analysis was performed on lecturers' scores in computer skills, institutional factors, usefulness, and usability on utilisation of scholarly electronic publications.

Table 4.13 Multiple regression of computers skills, institutional factors, usefulness, and usability utilisation of scholarly electronic publications by lecturers

Model	Sum of Squares	Df	Mean	F	Sig.
Regression	52752.808	4	13188.202		
Residual	806335.30	1398	576.778	22.865	.000
Total	859088.11	1403			

R = .248

R² = .061

Adj R² = .050

Table 4.13 shows that computer skills, institutional factors, usefulness and usability correlate positively with utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria (F (4,139)=22.865; R=.248, R²=.61, Adj R²=0.059, P<0.05). About 6% of the variation was accounted for by the independent variables while the remaining 94% was not due to chance but by other factors not accounted for in this study. Thus the null hypothesis is rejected. Therefore, computer skills of lecturers, institutional

factors, usefulness and usability will significantly predict utilisation of scholarly electronic publications available in federal universities libraries in Nigeria. Improvement in the independent variables may bring about improvement in the utilisation of scholarly electronic publications by lecturers in federal universities in Nigeria.

4.6 Results from interview

The result of the interview conducted by the researcher among 24 respondents drawn from each of the faculties are presented below.

4.6.1 Computer skills possessed by the respondents

The oral interview revealed that all the respondents were computer literate. Some of them noted “I am very skilful and can teach students how to use the Internet”. This means that lecturers in the study seemed to have adequate computer skills such as word processing and Internet search skills.

4.6.2 Institutional factors

On the provision of computer, printers and other tools to facilitate utilisation of scholarly electronic publications in the library, majority of the interviewees said that there were inadequate computers in the universities libraries. One of the respondents said, “How can? With the ever increasing population of students and staff?” Therefore, institutional information and communication (ICT) infrastructure in the universities libraries were inadequate.

On the issue of training, the respondents noted that training is partially organised on how to use e-journals in the libraries. There were good human relations among the respondents because the interview revealed that informal interaction with colleagues

enabled them to use e-journals. Therefore, the workplace environment (colleagues) encouraged use of e-journals in the library. However, most respondents noted that the physical environment where e-journals are used was not conducive. Some of the respondents noted that management should have had separate sections for staff and students. Therefore, the physical environment was not conducive to the lecturers.

As for policies put in place to guide use of e-journals in the library, the interview revealed that the respondents preferred the rules to ensure good conduct. The interview showed that Internet connection was poor, servers were down most times, slow download and poor authentication process.

On workload all respondents in the interview said that they were overloaded with work. One of the respondents said “yes – I teach 5 courses – 2 M.Sc and 3 undergraduate, faculty examination officer, level coordinator, and committees’ membership. I have not gone to the library to browse in the last ten days because of workload”. Hence it may be said that lecturers in federal universities were overloaded with work.

4.6.3 Usefulness of scholarly electronic publications to lecturers

The interview revealed that the respondents found e-journals useful to their research work. They noted that the contents of e-journals made available to them in the library were relevant, reliable, trustworthy and current. On what they use to judge reliability they said “author, currency, and publishers”. The interview also revealed that the respondents preferred both PDF and HTML. However, one of them said “the problem with PDF is that it is slow to download”. Also the interview showed that the respondents preferred to read full-text. However, a professor said “this depends on the stage you are in the research process-so abstract, full-text and bibliography is relevant”.

4.6.4 Usability of scholarly electronic publications

The interview revealed that the respondents found e-journals in the library easy to use, user friendly, terms are easily understood, and can navigate (i.e. move from one page to another using links) them with ease. A professor of mass communication said “can navigate the system. It is exciting and revealing”. Furthermore, the professor said “these things are easily understood such as some icons”.

4.6.5 Utilisation of scholarly electronic publications by lecturers

The data gathered from the interview revealed that the respondents occasionally used scholarly electronic publications in the library. The respondents spent between 30 minutes to 2 hours each time they visited the library to use e-journals. On the research activities for which they use Scholarly Electronic Publication the respondents said that they can use e-journals. “In all research activities I rely on e-publications”.

4.7 Results of observation schedule

The report of the observation carried out by the researcher at the ICT units of six federal universities libraries is presented in this subsection.

Information generated from the observation showed that majority of the libraries had between less than 50 -150 computers. Only one federal university library had over 150 computers. This showed that the provision of computers in the libraries is fairly adequate. Other ICT tools found are printers, scanners and UPS. Other facilities seen in the libraries include air conditioners and fans.

The libraries buildings were centrally located to ease physical access by the respondents. The buildings were beautiful with good interior, well furnished with comfortable chairs and tables to attract the respondents to use e-journals for research.

Electricity supply is an important infrastructure in the provision and use of e-journals. The finding revealed that all federal universities libraries in the study have alternative electricity supply like inverter and generating set (generator).

The observation also revealed that few respondents were seen in the system units of the libraries. They were not satisfied with the services because the servers were down most times. It took over 30 minutes before the server came up again. This showed that the libraries had poor Internet connection.

4.8 Discussion of findings

This section reports the findings of the study and discusses them in line with findings from previous studies.

4.8.1 Varieties of scholarly electronic publications available in federal university libraries in Nigeria.

One of the findings of this study is that there were 47 types of scholarly electronic publications in federal university libraries in Nigeria. The available scholarly electronic publications vary from one university library to another. However, some such as JSTOR, AGORA, HINARY, EBSCOHOST, Nigerian virtual library and DOAJ were common to all university libraries in this study. This finding is in line with Ray and Day (1998) who found that dependent upon individual university, subscriptions, students have a number of online databases available to them. A reason for this finding could be inadequate funds

from the Nigerian government to enhance university libraries development. Akintunde (2006) noted “funding by government which has been the sponsor of 75 percent of the libraries has been dwindling and quite unreliable in the last few years.” Also the Congress of the United States (1997) noted that “institutions may differ investing in system until the technology is more stable”.

4.8.2 Computer skills possessed by lecturers

The study found that lecturers in the study possessed adequate computer skills like word processing and conducting Internet search such as browse, receive and send e-mail. This finding corroborates the findings Agbonlahor (2005) that “computer applications used by academics in Nigerian universities were word processing, e-mail and web-browsing.” The situation may be accounted for by the fact that lecturers in federal universities in Nigeria are compliant with modern use of ICT in research communication. Also, the finding supports Safahieh and Asemi (2008) who found that “the ability of operating computer systems to perform personal, job related tasks, use web browsers and searching on the Internet to retrieve information and communicating with others by sending and receiving e-mail has become essential part of every ones skills.”

4.8.3 Institutional factors that facilitated lecturers’ utilisation of scholarly electronic publications in federal university libraries

The study has revealed that institutional factors such as institutional information and communication technology (ICT) infrastructure, workplace, training, cost, and policy/rules and regulations facilitated lecturers’ utilisation of scholarly electronic publications in university libraries. Interview result supported this. This finding supported Rogers (1995) who identified organisational characteristics as one of innovation. However,

workload, and access did not facilitate utilisation of scholarly electronic publications in the libraries. Interview conducted by the researcher corroborated this result. This supports Teferra (2003) who noted that increasing high teaching load associated with unprecedented growth and expansion in enrolment has diminished the time left for research communication.

4.8.4 Usefulness of scholarly electronic publications to lecturers

There was high level of usefulness of scholarly electronic publications to lecturers. This means that the lecturers had value for the contents of e-journals in the holdings of the libraries. Therefore, the contents of the libraries databases are reliable, relevant, current and timely for the research activities of lecturers. The interview results corroborated this finding. The finding is in line with Tenopir, Hitchcock and Pillow (2003) who in a users' study found that most of the respondents greatly value electronic journals. Faculties are comfortable using electronic resources, believe a variety of electronic resources, are important to their research and considered electronic databases invaluable. The usefulness of scholarly electronic publication cannot be overemphasised because they constitute the vehicle upon which information, knowledge, research and ideas are generated, transmitted, shared and disseminated. Therefore, lecturers' use varied forms of scholarly electronic publications in formal and informal settings to communicate with one another in the some disciplines as well as others beyond their disciplines and institutions (Teferra, 2003).

4.8.5 Usability of scholarly electronic publications

The study has revealed that lecturers found scholarly electronic publications in the university libraries easy to use and user friendly. This implied that lecturers use scholarly electronic publications effortlessly, by navigating their contents with ease, understood terms used in the databases and learn to use help messages with ease. Therefore, usability was comfortable to lecturers. This finding is at variance with Ehikhamenor (2003) and Abels, Liebscher and Denman (1996) yet agreed with Ibrahim (2004) who found that the library website usability was rather comfortable. The current situation could be as a result of achievement in scholarly electronic publications design platform to reflect users need for ease of use and user friendly systems.

4.8.6 Utilisation of scholarly electronic publications in university libraries

The result of the analysis on utilisation of scholarly electronic publications showed that there was low level of utilisation of scholarly electronic publications in federal university libraries among majority of lecturers. This means that most lecturers do not visit the libraries to utilize the available e-journals. In other words very few lecturers visit the library to utilize the electronic databases such as JSTOR, AGORA, HINARI, EBSCOHOST and DOAJ. This finding agrees with Olalude (2007), Gill and Dangarno (2008), Ibrahim (2004) and Ajuwon (2003) who found that access to and use of electronic resources is low in academic libraries. One of the explanations responsible for the situation could be according to the Congress of the United States, Office of Technology Assessment, (1997) “the general acceptance and use of a new technology usually lags considerably behind its availability. Estimate for the average time lag are from 10-15 years

but wide variation occurs.” The traditional practice of using print journals may still be with the lecturers hence, low utilisation of scholarly electronic publications.

Also with advent of private Internet service providers (ISP) such as MTN, Visafone, Glo and Starcom, some lecturers now subscribe to personal Internet connectivity and this may have prevented them from visiting the libraries to consult electronic journals. Still another reason is the development of open access initiatives. Hence, general-purpose search engines, designed to locate any resource on the Internet are often the starting point for many readers (lecturers) when trying to locate scholarly works (Jones, 2007). The situation may be as a result of high academic workload and administrative responsibilities of the lecturers. According to Hancock et al (1992) respondents viewed administrative, committee, and teaching duties as a primary impediment to research productivity.

4.8.7 Relationship between computer skills and utilisation of scholarly electronic publications in university libraries

The test of significance of relationship between computer skills of lecturers and utilisation has shown that there was a negative significant relationship between computer skills of lecturers and their utilisation of scholarly electronic publications in federal university libraries. This implies that as computer skills of lecturers improve utilisation of scholarly electronic publications in the libraries will decrease. In other words computer skills of lecturers are inversely related to utilisation of e-journals. This finding is at variance with Majid and Abazova (1999) as cited in Waldman (2003) who in a study of faculty’s use of electronic resources found “an especially significant relationship between computing skills and use of electronic resources in the library.” The variance in this

situation may be as a result of lecturers' subscription to Internet connection and as such do not need to visit the libraries to use e-journals.

4.8.8: Relationship between institutional factors and utilisation of scholarly electronic publications in libraries

The result revealed that institutional factors correlated positively with utilisation of scholarly electronic publications in university libraries. This means that as there is improvement in institutional factors, lecturers utilisation of scholarly electronic publications in the holdings of university libraries will increase. Therefore, institutional factors determined utilization of SEP among lecturers. This finding agrees with Davis (1996) who posited that the institutional context of any new information system is a vital determinant of system success. Rogers (1983) also identified organizational characteristics as a principal factor influencing diffusion of innovation. While Astebro (1995) studied the use of electronic mails systems (EMS) and found that social and management factors influenced the rate of EMS diffusion and use. Teo (2009) as cited in Al-Busaidi and Al-Shihi (2010) said facilitating conditions, measured by technical support, training and administrative support indirectly affect teachers' acceptance of technology in education.

4.8.9: Relationship between usefulness and utilisation

The analysis revealed that there was no significant positive relationship between usefulness and utilisation of scholarly electronic publications in the libraries. This means that usefulness i.e. the quality and authoritativeness of the contents of e-journals did not explain for lecturers' utilisation of e-journals in the university libraries. In essence, usefulness is not a predictor of utilisation. Although this finding is at variance with the finding of Mackie-Mason et al (1999) and Tenopir, Hitchcock and Pillow (2003) yet it

conforms with Ibrahim (2004) who found that quality of e-resources content insignificantly influenced the low use of e-resources in the UAEU. Lecturers were already aware of the usefulness of print articles to their research. The transformation from print to electronic format may not change their earlier value orientation; hence usefulness did not predict utilisation of scholarly electronic publications in the libraries.

4.8.10 Relationship between usability and utilisation of scholarly electronic publication in libraries

The research revealed that there was a significant positive relationship between usability (ease of use) and utilisation of scholarly electronic publications in the libraries. This could be interpreted to mean that as there is improvement on usability (greater ease of use, highly user friendly and easily understood terms) lecturers' utilization of scholarly electronic publications in the library will be high. Therefore, usability (ease of use) is a predictor of utilisation. This finding is similar to that of Tsakonas and Paratheodorou (2006) who found that ease of use and navigation were the most influential attribute of an information system.

4.8.11 Combined Influence of computer skills of lecturers, institutional factors, usefulness and usability on utilisation of scholarly electronic publications

The result indicated that there was a positive and significant combined influence of computer skills of lecturers, institutional factors, usefulness and usability on utilisation of scholarly electronic publications by lecturers. This could be interpreted to mean that any manipulation of the independent variables –computer skills, institutional factors, and usability will bring about a change in the dependent variable utilisation. In effect computer

skills, institutional factors and usability are predictors of utilisation of scholarly electronic publications.

UNIVERSITY OF IBADAN

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of findings

The summary of major findings of this study is presented as follows:

- a. There were forty seven (47) types' scholarly electronic publications in federal university libraries in Nigeria. Some of the electronic databases are JSTOR, AGORA, HINARI, EBSCOHOST and DOAJ.
- b. Lecturers in federal universities in Nigeria possessed adequate computer skills such as word processing and Internet search skills that could enable them search the e-journals in the libraries.
- c. Institutional factors such as institutional information and communication technology infrastructure (ICT), workplace, training and policy influenced lecturers' utilisation of scholarly electronic publication in the universities.
- d. Majority of the lecturers found the content of scholarly electronic publication useful to their research work. The contents were seen to be relevant, timely, current and reliable.
- e. Workload and access (both physical and electronic) did not facilitate lecturers' utilisation of scholarly electronic publications in the university libraries
- f. Lecturers found scholarly electronic publications in the university libraries easy to use and user friendly. They used the e-journal effortlessly and so usability was easy
- g. There was low level of utilisation of scholarly electronic publications among lecturers in federal university libraries.

- h. Computer skills correlated negatively with utilisation of scholarly electronic publications in university libraries. Therefore, computer skills of lecturers influenced their utilisation of e-journals in the libraries.
- i. There was a positive and significant relationship between institutional factors and utilisation of SEP in the university libraries. Institutional factors determined lecturers' utilisation of scholarly electronic publications.
- j. There was no relationship between usefulness and utilisation of scholarly electronic publications in university libraries. Usefulness therefore, did not predict utilisation.
- k. There existed a positive and significant relationship between usability (ease of use) and lecturers' utilisation of scholarly electronic publications in the university libraries.
- l. Computer skills of lecturers, institutional factors, usefulness and usability jointly determined lecturers' utilisation of scholarly electronic publications in federal university libraries in Nigeria.

5.2 Implications of the study

The results of this study have raised some implications for university library managers to plan for improved utilisation of scholarly electronic publications by lecturers. The study has shown that there was low level of utilisation of scholarly electronic publications in the libraries by lecturers. Therefore, there is urgent need for the federal university librarians to adopt a more proactive approach to strategies that will equip lecturers with the knowledge and skills required to use scholarly electronic publications. This would justify the huge sum of financial resources university managements and other donor agencies have expended on the libraries.

It was observed that Internet access militated against lecturers' utilisation of scholarly electronic publications in the libraries. The implication of this to the university librarians is that they should provide functional Internet access in the library to encourage lecturers to use scholarly electronic resources.

Workload is another factor that inhibited lecturers' use of scholarly electronic publications in the libraries. This implies that increased workload of teaching, research and administrative responsibilities took much of lecturers' time and as such had little or no time to visit the library to use e-journals. Therefore, the university management should as a matter of urgency employ more academic staff in order to reduce lecturers' workload. This may create more time for the lecturers to visit the library to use e-journal.

Lecturers indicated epileptic power supply as an inhibitor to use of scholarly electronic publications in the libraries. This problem could be resolved by the use of generators and solar energy in order to provide uninterrupted electricity supply to improve usage of scholarly electronic publications by lecturers. Another hindrance to the use of e-journals by lecturers was library closing time. Lecturers' considered closing time to be too early. Therefore, library management should include lecturers in their time management so as to extend library closing time in view of lecturers. If possible the library should be opened 24/7 for lecturers. This logically implies that some library staff could run night shift to encourage use of e-journals. This means increasing the budget of the library and by extension that of the university.

5.3 Conclusion

This study provided empirical data on variables that predicted lecturers' utilisation of scholarly electronic publications in federal university libraries in Nigeria. The results indicated that lecturers in federal university libraries had adequate computer skills.

Institutional factors facilitated utilisation of scholarly electronic publications in the library. Lecturers found the contents of e-journals in the libraries useful and easy to use. However, this study revealed that lecturers underutilized available scholarly electronic publications in the university libraries. And finally, computer skills, institutional factors and usability are predictors of lecturers' utilisation of scholarly electronic publications in federal university libraries in Nigeria. Consequently, federal university management teams and their libraries should evolve strategies to increase utilisation of scholarly electronic publications among lecturers.

5.4 Recommendations

In view of the findings of the study, the researcher wishes to recommend the followings:

1. There is need for federal university management to facilitate acquisition of relevant computer skills through training and re-training of lecturers to increase the low level of utilisation of scholarly electronic publications. This could be achieved through seminars, workshops, conferences, and user education. The training should focus on how to use each of the scholarly electronic publications to complement lecturers' computer skills and Internet search skills.
2. Librarians and other IT staff in the libraries should be encouraged to teach lecturers by sending them to international and national conferences, seminars, and workshops on the applications of scholarly electronic publications and Internet skills.
3. Lecturers' use of SEP should be arose by providing Internet facilities in their offices. In this connection the library home page will act as the interface to access and use e-journals.

4. ICT facilities in the libraries should be upgraded to ameliorate the problem of inadequate access such as servers are down and slow download.
5. The library power supply should be on a 24/7 basis to encourage all times provision and use of e-journals services.
6. Promotion of scholarly electronic publications usage by lecturers should be done by the university libraries. This involves creating awareness, promotion and advertisement of e-journals services to the lecturers.

5.5 Limitations of the study

Certain factors militated against achieving optimal results in this study. These limitations are:

- i. The sample of the study was drawn from six (6) out of twenty eight (28) universities and four out of several faculties. Therefore, the results should be considered in context and not to be generalized to other segment of the population without further research.
- ii. Another limitation is non-response i.e. failure of lecturers to complete and return questionnaire. About six hundred and one (601) questionnaires were not returned and as such were not analysed.

5.6 Contribution of the study to knowledge

This study has contributed to knowledge in the following ways:

The study has established that, there was low level of utilisation of scholarly electronic publications among lecturers in federal universities in Nigeria.

Also, the findings of this study have implications for Diffusion of Innovation Theory (DOI) that guided this research. An element in DOI is that the characteristics of the innovation as perceived by the members of a social system determine its rate of adoption.

This has been validated in this study. One of the results showed that complexity i.e. ease of use (usability) significantly influenced utilisation of SEP among lecturers in federal universities in Nigeria. Therefore, the research has lent some validity to the DOI theory that complexity (usability) determines the rate of adoption and use of SEP.

DOI also posits that a system structure, norms and opinion leaders can influence the rate of diffusion of an innovation within a social system. The social context refers to the social network surrounding a potential adopter, opinion leaders within that network and organizational characteristics. In this research, it has been established that institutional factors (social system) such as ICT infrastructure, academic workload and immediate workplace environment significantly influenced utilisation of SEP among lecturers. Therefore, this research has lent credence to the DOI theory that the social system can influence the rate of diffusion of an innovation.

5.7 Suggestions for further study

This study did not in any way claim to have exhausted the investigation of all variables that may affect lecturers' utilisation of scholarly electronic publications in federal university libraries in Nigeria. Therefore, the following suggestions were made for further research.

1. A comparative study of factors that facilitate lecturers' utilisation of e-journals in state and private university libraries in Nigeria.
2. There is the need to research on gender differences in utilisation of scholarly electronic publications among lecturers in universities in Nigeria.
3. This study did not investigate disciplinary differences among lecturers' use of e-publications in libraries. This could be an area to be investigated by other researchers.

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UNIVERSITY OF IBADAN

APPENDIX 1
UNIVERSITY OF IBADAN
DEPARTMENT OF LIBRARY, ARCHIVAL AND INFORMATION STUDIES
QUESTIONNAIRE
COMPUTER SKILLS OF LECTURERS QUESTIONNAIRE (CSLQ)

Dear Respondent,

This questionnaire is aimed at collecting data on the computer skills possessed by lecturers in federal universities in Nigeria.

Kindly, respond to the items by ticking the appropriate responses. You are guaranteed of strict confidentiality of any data provided.

Thank you

Yours truly,

M.O. Ogbomo
(08133911689)

SECTION A Respondents personal information

Please indicate your response to the statements below by a tick (√) in the box () representing your response to the statement. For item 1, please write out your response in the space provided.

1. University.....
2. Faculty: Arts [] Education [] Sciences [] Social Sciences []
3. Academic Status: Graduate Assistant [] Assistant Lecturer [] Lecturer II []
Lecturer I [] Senior Lecturer [] Reader/Associate Professor [] Professor []
4. Gender: Male [] Female []

SECTION B Computer Skills of Lecturers

Please indicate your response – Strongly agree (SD), Agree (A), Disagree (D) and Strongly disagree (SD) to the statements below by a tick (√) in the space provided.

S/N	Statements	SA	A	D	SD
1	I can use input devices like mouse/arrow key				
2	I can turn the computer, monitor, and printer on or off				
3	I can save a file to a flash or to specific location on the local or network environment				
4	I can print a document from the computer				
5	I can send, receive, print or save e-mail messages				
6	I can navigate the Internet/www using functional keys like back, forward, reload, stop, refresh, go home, etc				
7	I can launch any of the web browsers				

APPENDIX 2
UNIVERSITY OF IBADAN
DEPARTMENT OF LIBRARY, ARCHIVAL AND INFORMATION STUDIES
QUESTIONNAIRE
INSTITUTIONAL FACTORS QUESTIONNAIRE (IFQ)

Dear Respondent,

The aim of this questionnaire is to collect data on the institutional factors that influence lecturers to use scholarly electronic publication in federal universities libraries in Nigeria.

Kindly, respond to the statements by ticking the appropriate responses. You are guaranteed of strict confidentiality of all information provided. For item 1, please write out your response in the space provided.

Thank you

Yours truly,

M.O. Ogbomo
(08133911689)

SECTION A Respondents personal information

Please indicate your response to the statements below by a tick (√) in the box () representing your response to the statement. For item 1, please write out your response in the space provided.

1. University.....
2. Faculty: Arts [] Education [] Sciences [] Social Sciences []
3. Academic Status: Graduate Assistant [] Assistant Lecturer [] Lecturer II []
Lecturer I [] Senior Lecturer [] Reader/Associate Professor [] Professor []
4. Gender: Male [] Female []

SECTION B Institutional factors

Please indicate your response – Strongly agree (SA), Agree (A), Disagree (D) and Strongly disagree (SD) to the statements below by a tick (√) in the space provided.

S/N	Statements	SA	A	D	SD
1	There are skilled ICT staff in the library				
2	There is alternative supply of electricity supply like generator or solar				
3	There is quick response to network/connectivity problems in the library				
4	There are adequate provision of computers, printers and other facilities				
5	The library environment is conducive to browse e-journals				
6	Lecturers are aware of the availability of e-journals in the library				
7	I started to use e-journals after informal interaction with colleagues				
8	There is Internet access in my office, department and faculty				
9	I started to use e-journals after formal interaction with colleagues				
10	Increased work load like teaching, and project supervision take more of my time				
11	I am involved in too many administrative responsibilities				
12	Lecturers are trained on how to use e-journals in the library				
13	Poor Internet connection				
14	Download is usually slow				
15	The library servers are down most time				
16	The library is close to my office				
17	Cost of Internet access in the library is too high				
18	Printing charge in the library is too high				
19	E- journals are used for promotion in the university				
20	Registration of users at the unit where e-journals are used in the				

	library				
21	Closing time is too early				
22	Download is restricted to a number of article				
23	Download into flash and CD-Rom is allowed				

UNIVERSITY OF IBADAN

APPENDIX 3

UNIVERSITY OF IBADAN

DEPARTMENT OF LIBRARY, ARCHIVAL AND INFORMATION STUDIES

QUESTIONNAIRE

USEFULNESS OF SCHOLARLY ELECTRONIC PUBLICATION SCALE (USEPS)

Dear Respondent,

This instrument focused on collecting data on usefulness of scholarly electronic publications to lecturers in federal universities in Nigeria.

Kindly, respond to the statements by ticking the appropriate responses. You are guaranteed of strict confidentiality of data provided.

Thanks

Yours truly,

M.O. Ogbomo
(08133911689)

SECTION A Respondents personal information

Please indicate your response to the statements below by a tick (✓) in the box () representing your response to the statement. For item 1, please write out your response in the space provided.

1. University.....
2. Faculty: Arts [] Education [] Sciences [] Social Sciences []
3. Academic Status: Graduate Assistant [] Assistant Lecturer [] Lecturer II []
Lecturer I [] Senior Lecturer [] Reader/Associate Professor [] Professor []
4. Gender: Male [] Female []

SECTION B usefulness

Please indicate your response – Strongly agree (SA), Agree (A), Disagree (D) and Strongly disagree (SD) to the statements below by a tick (✓) in the space provided.

S/N	Statements	SA	A	D	SD
1	The content of e-resources is related to my research topic				
2	E-journals are relevant to my research topic				
3	I like e-journals in PDF format				
4	I like e-journals in HTML format				
5	E- resources contents are trustworthy				
6	E-journals are credible				
7	E- resources contents are authoritative				
8	I prefer to use full-text article in e-journals				
9	I like to use bibliographic data of e-journals				
10	I like to use abstracts to article found in e-journals				
11	The content of e-journals are current				

APPENDIX 4
UNIVERSITY OF IBADAN
DEPARTMENT OF LIBRARY, ARCHIVAL AND INFORMATION STUDIES
QUESTIONNAIRE
USABILITY OF SCHOLARLY ELECTRONIC PUBLICATIONS INSTRUMENT
(USEPI)

Dear Respondent,

This instrument is aimed at gathering data on ease of use (usability) of scholarly electronic publication among lecturers in federal universities in Nigeria.

Please, respond to the items by ticking the appropriate responses. You are guaranteed of strict confidentiality of any information provided. For item 1, please write out your response in the space provided.

Thanks

Yours truly,

M.O. Ogbomo
(08133911689)

SECTION A Respondents personal information

Please indicate your response to the statements below by a tick (√) in the box () representing your response to the statement. For item 1, please write out your response in the space provided.

1. University.....
2. Faculty: Arts [] Education [] Sciences [] Social Sciences []
3. Academic Status: Graduate Assistant [] Assistant Lecturer [] Lecturer II []
Lecturer I [] Senior Lecturer [] Reader/Associate Professor [] Professor []
4. Gender: Male [] Female []

SECTION B usability of scholarly electronic publication

Please indicate your response – Strongly agree (SA), Agree (A), Disagree (D) and Strongly disagree (SD) to the statements below by a tick (√) in the space provided.

S/N	Statements	SA	A	D	SD
1	They are easy to use				
2	They are user friendly				
3	I found it easy to move from one page to another				
4	I could move from one article to another with the links found in work cited				
5	I could move around e-journals with ease				
6	I found terminologies used in the e-journals easy and clear to understand				
7	I found consistency in the use of terms in the database				
8	The information provided by e-journals were easily understood by me				
9	It is easy to learn how to use e-journals available in the library				
10	Help messages on the screen are usually helpful during search				

APPENDIX 5

UNIVERSITY OF IBADAN

DEPARTMENT OF LIBRARY, ARCHIVAL AND INFORMATION STUDIES

QUESTIONNAIRE

**UTILISATION OF SCHOLARLY ELECTRONIC PUBLICATIONS
QUESTIONNAIRE (USEPQ)**

Dear Respondent,

The aimed of this questionnaire is to collect data on utilisation of scholarly electronic publications from lecturers in federal universities in Nigeria.

Kindly, respond to the statements by ticking the appropriate responses. You are guaranteed of strict confidentiality of any data provided. For item 1, please write out your response in the space provided.

Thanks

Yours truly,

M.O. Ogbomo
(08133911689)

SECTION A Respondents personal data

Please indicate your response to the statements below by a tick (√) in the box () representing your response to the statement. For item 1, please write out your response in the space provided.

1. University.....
2. Faculty: Arts [] Education [] Sciences [] Social Sciences []
3. Academic Status: Graduate Assistant [] Assistant Lecturer [] Lecturer II []
Lecturer I [] Senior Lecturer [] Reader/Associate Professor [] Professor []
4. Gender: Male [] Female []

SECTION B Utilisation of scholarly electronic publication

Please indicate your response – Very often, Often, Occasionally and Never to the statements below by a tick (√) in the space provided.

S/N	Statements	Very often	Often	Occasionally	Never
1	JSTOR				
2	Encyclopedia Online				
3	Library Website				
4	GLOBAL DEVELOPMENT NETWORK-JOURNAL SERVICE				
5	AJOL				
6	ELSEVIER: Science Digest				
7	AGORA				
8	E-JOURNAL.ORG				
9	DOAJ				

10	ACM DIGITAL LIBRARY				
11	ISI Web of science				
12	MCB: Emerald Library				
13	HINARI				
14	SAGE				
15	ACS PUBLICATION				
16	Ebrary				
17	EBSCOHOST				
18	SCIENCE				
19	ERIC				
20	PCT				
21	REPEC: RESEARCH PAPERS IN ECONOMICS				
22	BIOMED CENTRAL				
23	BMJ PUBLISHING GROUP				
24	ABC CLIO				
25	American mathematical society				
26	HMP				
27	ABI INFORM				
28	CHEMLIST				
29	Helecon				
30	OARE				
31	Pop line				
32	PROQUEST DIRECT				
33	EEBO				
34	HIGHWIRE ARCHIVE				
35	QUESTIA				
36	AMICO				

37	Zentralblatt math				
38	Silver platter				
39	SOURCE OECD				

UNIVERSITY OF IBADAN

APPENDIX 6

UNIVERSITY OF IBADAN

DEPARTMENT OF LIBRARY, ARCHIVAL & INFORMATION STUDIES

**COMPUTER SKILLS OF LECTURERS, INSTITUTIONAL FACTORS,
USEFULNESS, USABILITY, AND UTILISATION OF SCHOLARLY
ELECTRONIC PUBLICATIONS IN FEDERAL UNIVERSITIES IN NIGERIA.**

OBSERVATION CHECKLIST –Library

Name of the Observer:.....

Date:

Time:

Place:

How many computers are available?

Less than 50 [] 51 – 100 [] 101 – 150 [] 151 – 200 [] over 200 []

1. How many printers are available? 1 [] 2 [] 3 [] 4 [] 5 []

2. Have the center air conditioners? Yes [] No []

3. Are the air conditioners functional? Yes [] No []

4. Is the center adequately lighted? Yes [] No []

5. How many fans are available? 1 [] 2 [] 3 [] 4 [] 5 []

6. Is the center centrally located? Yes [] No []

7. Did you experience power outage? Yes [] No []

8. If yes was there change to alternative source of power supply immediately? Yes []
No []

9. What is the type of Internet connectivity? Cable [] Wireless []

10. How many users are there?

Less than 50 [] 51 – 100 [] 101 – 150 [] 151 – 200 [] over 200 []

11. Did any of the users complain of “server down” “the thing is not going” or “page cannot be found”? Yes[] No []
12. If yes how many minutes did it take to fix the problem?
Less than 5mins [] 6-10mins [] 11-30mins [] More than 30mins []
13. Did they print? Yes[] No []
14. Did they copy to flash? Yes[] No []
15. Did they check & send e-mail? Yes[] No []
16. Any complain such as:
- I can't understand how to use this thing? Yes[] No []
-want to print how do I do it? Yes[] No []
17. Staff giving instruction to new users? Yes[] No []

UNIVERSITY OF IBADAN

APPENDIX 7

UNIVERSITY OF IBADAN

DEPARTMENT OF LIBRARY, ARCHIVAL & INFORMATION STUDIES

INTERVIEW SCHEDULE FOR LECTURER

COMPUTER SKILLS OF LECTURERS, INSTITUTIONAL FACTORS, USEFULNESS, USABILITY AND UTILISATION OF SCHOLARLY ELECTRONIC PUBLICATIONS IN UNIVERSITIES IN NIGERIA

1. Faculty

.....

2. Academic Status:

Graduate Assistant [] Assistant Lecturer [] Lecturer II []
Lecturer I [] Senior Lecturer [] Reader []
Professor []

3. Gender: Male [] Female []

Computer Skills of Lecturers

4. Can you on and off the computer and its accessories
5. Can you type your works or seek a helping hand to do so?
6. Can you browse?
7. How will you describe your ability to use the computer and Internet?

Institutional Factors

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