Awareness, Anchor Factors and Use of Institutional Repositories by Academic Staff in Oyo and Osun State Universities, Nigeria

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Certification

This is to certify that this thesis was carried out by **Taofeek Abiodun OLADOKUN** with Matriculation Number **LCU/PG/002194,** a student in the Department of Information Management under my supervision in the Faculty of Communication and Information Science, Lead City University, Ibadan, Nigeria.

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Dedication

This thesis is dedicated to God Almighty for His sufficient grace over my life.

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Abstract

Institutional repositories provide a rich source of information for researchers globally. This has led to the development of thousands of repositories by universities around the world. However, the use of institutional repository by academic staff in Nigerian universities has been observed to be below expectation. Consequently, researchers have examined various factors relating to the use of institutional repositories. This study examined the influence of awareness and anchor factors on the use of institutional repositories by academic staff of universities in Oyo and Osun States. Descriptive survey research design was adopted for the study. A structured questionnaire was adopted as the instrument for data collection. The study population consists of 1,009 academic staff from four universities in Oyo and Osun States. Taro Yamane formula was used to determine the sample of 286. The quantitative data collected was analysed using both descriptive and inferential statistics. The study found that the level of institutional repository use (Mean =3.04), awareness (Mean =2.89), and anchor factors (Mean =3.06), is high among the respondents. The test of hypothesis showed that awareness (Adj. R^2 = 0.152, p= 0.000) and anchor factors (Adj. R^2 = 0.164, p= 0.000) both have significant influence on the use of institutional repositories among the respondents. However, multiple regression analysis shows that, while awareness (p=0.000) has a significant combined influence on the use of institutional repositories among the respondent, anchor factors (p=0.122) do not have a significant influence. The study concluded that the use of institutional repositories by academic staff of universities remains the best approach to create better access to information resources and ensure greater impact for Nigerian research. It was therefore recommended that librarians should develop strategies to evaluate awareness programmes and also work closer with academic staff to develop task-oriented skills that enhance effective use of institutional repositories.

Keywords: Academic Staff, Anchor factors, Awareness, Institutional Repositories, Scholarly Communication.

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Chapter One

Introduction

1.1 Background to the Study

The willingness of academic staff of universities to use institutional repositories depends on their level of awareness of institutional repositories and other factors such as anchor factors. Institutional repositories are information systems developed to collect, collate, organise, and disseminate the research outputs of the members of academic and research-oriented institutions. They are digital-based information systems designed to manage the research outputs of a particular institution to ensure effective collation, organization, preservation and accessibility of scholarly output. They are often described as digital storage system which contains the intellectual output of staff, lecturers as well as students of universities[1]. Institutional repositories are however more than simply a storehouse of intellectual products of an institution, they are real information systems which acquire, organize, preserve and disseminate scholarly information resources to researchers in an institution as well as others from all over the world[2].

Institutional repositories are the by-products of the application of information technology to the creation, organization, dissemination, retrieval and preservation of information. The modern information age is characterized by a significant leap in the ability to create, recreate and disseminate information. Even with the unprecedented volume of information available, scholars around the world continue to generate more and more in a bid to drive global development and create a better understanding of the complex world in which we live.

This has highlighted the importance of information in the modern age. Information is however of no relevance unless it can be harnessed to create more knowledge and

solve various problems facing human beings. This is why institutions around the world are creating systems that enable them to effectively manage their research outputs in term of collation, organisation, preservation and dissemination. Presently, there is no reputable academic or research institution that has not set up or is not considering setting up an institutional repository.

There were seventy-eight (78) known institutional repositories in 2005. Today the number has grown to more five thousand, eight hundred and seventy-seven (5877), an increment of about 200 compared to 2021 data. The highest number of institutional repositories (IRs) are from Europe (45.6 %), then Asia (19.7 %), North America (18.8 %), South America (8.6%) and Africa (4.4 %). The highest number of IRs in Africa are from South Africa with 22.4% (32); Kenya with 16.1 % (23); Nigeria with 13.3% (31); and Algeria with 9% (13) institutional repositories[1].

Nigeria is not left out in the race to create IRs as many academic institutions in Nigeria now have functioning, web-accessible IRs that can be assessed by anyone globally[9]. Recent figures show that there are 31 online repositories in Nigeria, compared to 19 in 2021. Many universities in Nigeria have created comprehensive and robust IRs using various software such as Dspace ePrint software and it holds a wide collection of scholarly resources made of research outputs of staff and students of the institution. Most importantly, it is accessible on the internet which means that users within and beyond the institution can access and retrieve information resources from the database[10]

The idea of creating institutional repositories came up due to the need to solve the rising cost of subscribing to scholarly journals and the need to get research reports to scholars around the world with as little bottleneck as possible. The 'serial crisis', a

situation whereby institutions and their libraries were being held to ransom by large scholarly journal publishers who offer bundled subscriptions at a high rate which institutions had to pay whether they need all the resources or not gave birth to the idea of creating institutional repositories[4].

Indeed, the idea of an institutional repository was championed by the open access movement which advocates for free access to all scholarly output on the basis that researchers are mostly funded by taxpayers' money so their output should also be seen as public goods. The Open Access movement encourages software developers to develop various open-source institutional repository software that institutions can download, customize and use free of charge. Indeed, institutional repository software such as Dspace, ePrint, Fedora, Weko, Digital Commons, OPUS, ContentDM, HAL, PURE and others are made available to users free of charge. This is done to ensure that the contents of institutional repositories are made available to users free of charge[3].

The content of institutional repositories are mainly scholarly works useful to researchers, students, Academic staff of universities and the general public who seek knowledge in all field. A cursory look at institutional repository reveal that the content can broadly be categorized into born digital and digitized information resources. Born digital are those resources that were originally created in digital format while digitized resources are those that were created in other formats such as print and microforms but which were later to digital format.

In addition to this categorisation, it is also important to include the actual types of information resources found in IRs globally. The information resources found in IRs include; Journal Articles, Theses and Dissertations, Books, Chapters and Sections,

Conference and Workshop Papers, Reports and Working Papers, Bibliographic References, Courseware, Datasets, Patents, Software and other sundry items[2]. What can be deduced from these eclectic collections of information resources is that, the only constant element in institutional repositories is the software and the common name of 'institutional'. In line with this, experts have outlined four key features that describe institutional repositories. These are customization, scholarly content, cumulative and perpetual as well as freely accessible.

Customization refers to the fact that an institutional repository is configured in a way that meets the needs and objectives of the institution creating it. They are defined by the institutions that created them. That is, the collections that make up an institutional repository is dependent on the scholarly output of the members of such institutions. The interface is also designed or customized to suit the branding style of the institution. The other feature is that the content of an institutional repository is universally scholarly in nature. They are not made for recreational or general resources.

Examples of the contents include theses and dissertations, conference papers, inaugural lectures, and published research works from Academic staff of universities and researchers in the institution. Furthermore, the contents of institutional repositories are cumulative and perpetual. That is, they are designed to grow their content and remain available to users for the foreseeable feature. The fourth feature of the institutional repository is that, although there are few exceptions, it is predominantly open access[4]. These features offer key advantages to academic institutions around the world

Developing institutional repositories enables academic institutions to put together an organized body of knowledge that emanates directly from the intellectual activities of members of the institution and it also serves as an effective way to expand the information resources available to members of the institution and other researchers around the world[5]. In addition to this, the institutional repository enables the research output of universities to be visible to a wider audience and increases global recognition and prestige of the institution[6]. An academic institution can also gather together the research output of its members to provide the general public a glimpse of its intellectual and ideological leanings so as to enable the reading public to understand what it stands for. Some institutions are also using the institutional repository to attract new students. They believe that by promoting the research culture in their institutions and how they provide exposure to the works of student researchers, prospective students may be encouraged to join their institutions[7]. The primary aim of an institutional repository, however, remains the provision of information resources for members of the institution.

All other motives ascribed to the creation of institutional repositories are subsumed under the main objective which is to provide a wide range of information resources to aid members of the institution in their academic endeavour especially in the area of research. In line with this, institutional repositories have been conceptualized as one of the modern services rendered by academic and research libraries to members of their parent institutions which facilitates the management and dissemination of scholarly information with the aid of appropriate software. This is encapsulated in a brief definition of institutional repository as a collection of services offered by a university targeted primarily at its own members. These services are concerned with the management, organization and dissemination of digital works created by these

members[3]. The obvious targets users of institutional repositories, therefore, include students, researchers and Academic staff of universities.

Academic staff are among the key users of institutional repositories. Academic staff of universities are expected to carry out three main functions which are teaching, research, and community service. The institutional repository is highly relevant in all these activities. On one hand, effective functioning of academic staff of universities in teaching, research and community services depends to a large extent on the use of relevant and up-to-date information resources which is provided by institutional repositories. On the other hand, academic staff of universities' intellectual activities, especially research, often result in the creation of valuable knowledge which must be shared with others through several means such as depositing them in institutional repositories. In essence, the use of institutional repositories by academic staff of universities can be measured by the purpose of using institutional repositories and the frequency of using institutional repositories by the Academic staff of universities[4].

The purpose of using institutional repositories by academic staff of universities has been broadly categorized into two. Academic staff of universities use institutional repositories as information systems from which they retrieve information resources for the purposes of research, preparing lesson notes, writing conference papers and other academic activities. The second category is the use of the repository for the purpose of self-archiving. This entails using the institutional repository to disseminate their research outputs. Academic staff of universities are great part of the collection building process for institutional repositories as they deposit preprints, published articles, ongoing research, course materials, and other useful information resources that other users of the repository can access. In line with this, the frequency of using repositories for these purposes is very important[6].

The frequency of use in terms of the institutional repository can be evaluated by how frequently the academic staff of universities retrieve information from institutional repositories as well as how regularly they deposit their research outputs. It is important to note that frequency of using an institutional repository is a nuanced concept. While some researchers used metrics such as daily, weekly, monthly and yearly, others have chosen to use regularly, sometimes, often, rarely and never among other. Both of the scales have their merit but the frequency of using the institutional repositories is relative; a user who uses them 'daily' may not necessarily use more resources than those who use 'weekly'. Therefore, the frequency of use may be better measured by scales such as 'regularly', 'occasionally' etc. which are relative terms. Whichever scale used, it is important to focus on the benefits offered by institutional repositories.

A functioning institutional repository offers several advantages to Academic staff of universities, researchers, and tertiary institutions. It creates wider access for the research output of Academic staff of universities. It is also an indispensable source of information to researchers, especially in developing countries such as Nigeria where there is limited access to subscription scholarly databases. To be regarded as regular users of an institutional repository, Academic staff of universities are expected to include it in their regularly consulted information sources for their academic works. In addition, they should also be ready to deposit all relevant research output except where constrained by relevant laws. They should also be willing to deposit these resources in a timely manner so that users can benefit from them. Doing this is important for the relevance of the institutional repository and the only way the advantages of establishing the repository can be enjoyed[3].

However, in spite of all the benefits of using institutional repositories, one of the persistent challenges for institutional repositories globally is the low rate of institutional repository use among Academic staff of universities who are the major stakeholders[4]. The low use of institutional repositories may also have some implications for academic staff of universities themselves as it may lead to poor quality research output, lack of innovative research idea, low visibility, and citation for their research works. Mindful of these consequences, researchers have examined various factors that may be responsible for low or non-use of institutional repositories by Academic staff of universities. Factors such as ICT skills, attitude, and copyright law among others have been considered. However, there are less examined factors such as awareness and anchor factors that may influence the use of institutional repositories by Academic staff of universities[3].

Awareness is considered important because it is the first condition for the use of any information system. Other researchers have also examined the influence of awareness on the use of institutional repositories. However, their examination of awareness tend to be one dimensional with questions measuring level of awareness with scales such as; 'highly aware'; 'moderately aware' etc'. This unidimensional approach to the measurement of awareness seems inadequate compared to available theories on awareness. As a result, awareness in this study is conceptualized as the consciousness of the existence, benefits, and relevance of institutional repositories to Academic staff of universities as outlined in the situational awareness theory[5]. In this study, these are conceptualized as perception, comprehension and projection

Perception is the situation of being aware of the existence of the institutional repository. This is the basic level of awareness. In this stage, the lecturer is aware that his/her institution has developed something called an institutional repository. This

may come through institutional bulletins, library news, and other publicity activities of librarians. Perceiving or being aware of the existence of an institutional repository is not enough to stimulate usage as has been shown by various studies[6,7]. Academic staff of universities may know of the existence of the institutional repository but they may not have any comprehension of what it stands for.

Comprehension is another level of awareness. It entails have full information about the purpose of setting up the institutional repository and how it works. This dimension of awareness also involves knowing what information resources are available in the repository and their provenance. Researchers have reported that Academic staff of universities are often reluctant to deposit their works in their institutions' repositories due to fear of intellectual property theft or some other reasons[8]. This shows that the comprehension of the full essence of the institutional repository and all relevant issues surround its use is not clear to the academic staff of universities. In addition, comprehending the essence of the institutional repository without being able to project its usefulness may also be a challenge to the use of institutional repositories.

Projection, as conceptualized in the situational awareness theory, is the ability to understand the danger or benefit posed by an emerging phenomenon. In the context of this study, it is expected that Academic staff of universities should be able to accurately predict or understand the benefits of using the institutional repository such as easy and free access to quality research, visibility of their own research output and their contribution to the growth of their institutions. The available evidence suggests that few Academic staff of universities have reached this stage of awareness which may be one of the reasons for low rate of institutional repository use among Academic staff of universities in Nigeria[8].

Researchers in India for instance, have shown that the lack of awareness of the institutional repository was the cause of its low use among Academic staff of universities in the country[9]. It is therefore possible that awareness has an influence on the use of institutional repositories by academic staff of Nigerian universities. However, solving the challenge created by low or no awareness may not solve all the problem unless other factors are also taken into consideration. In addition to awareness, other variables that could be responsible for the low use of institutional repositories are anchor factors

Anchor factors are variables adopted from the Technology Acceptance Model 3 (TAM 3). The TAM 3 was another improvement on the original Technology Acceptance Model introduced in 1989. The TAM is a model designed to predict the uptake and use of new information technologies. It is based on the premise that users' acceptance and use of a new technology are influenced by two beliefs or perceptions, namely perceived usefulness and perceived ease of use. To cater for some of the shortcomings of the original TAM it was modified, resulting in TAM 2 which added five general factors that determined perceived usefulness. These are subjective norm, image, work relevance, output quality, and demonstration of results[10].

TAM 3 is the consequence of the expansion of TAM 2 to incorporate variables of perceived ease of use and perceived usefulness. As additional predictors of perceived ease of use, anchor variables (computer self-efficacy, perceptions of external control, computer anxiety, and computer playfulness) and adjustment factors (perceived enjoyment and objective usability) were introduced. This study will consider the anchor factors which are believed to influence perceived ease of use. This is considered appropriate because perceived ease of use is a more accurate predictor of

intention to use and actual utilisation of any technological advance, particularly in developing nations[10].

Anchor factors are attitudes about computers and their use that are grounded on three general constructs: control, intrinsic motivation, and emotion. Perception of internal control (computer self-efficacy) is distinguished from perception of external control (facilitating conditions). Emotion is characterised as computer anxiety, whereas intrinsic motivation is demonstrated by computer playfulness. The anchoring components are therefore computer self-efficacy, sense of external control, computer playfulness, and computer anxiety. For the purpose of this study, anchor factors that are considered more relevant to Academic staff of universities are computer self-efficacy, computer playfulness, and computer anxiety. These will be considered in this study

Computer self-efficacy is the perception of Academic staff of universities regarding their ability to make use of the computer for the purpose of information management and retrieval. Computer self-efficacy includes the use of both computer hardware, software and the ability to troubleshoot when facing basic challenges. Computer self-efficacy will determine whether lectures see themselves as capable of handling the use of the institutional repository. Low perception of computer self-efficacy may discourage Academic staff of universities from even making any attempt to try out the institutional repository or to give up easily as soon as they encounter any difficulties in the use of institutional repositories. Academic staff of universities in this category are more likely to perceive the institutional repository difficult to use and may not use it even when they are aware of its benefits. On the other hand, Academic staff of universities with a high level of computer self-efficacy are those who are confident in their ability to use computer systems even when it is unfamiliar to them. Academic

staff of universities in this group would perceived the institutional repository as easy to use compared to those with low computer self-efficacy. Studies have shown that the use of institutional repositories among Academic staff of universities is affected by perceived information and communication technology use[11, 12]. Another important anchor factor is computer playfulness

Computer playfulness refers to the tendency of academic staff of universities to interact spontaneously with digital information systems such as institutional repositories. It is regarded as a personal trait that prompt individuals, including academic staff of universities to be curious about information systems, be comfortable with using information systems such as institutional repositories and be unfazed when they face challenges in the use of the system. Computer playfulness means that academic staff of universities are not focused so much on the outcome of using the system but on the process itself. As a result, Academic staff of universities with traits of computer playfulness would be happy to simply interact with the system without any worry of the end product. Over time, this has proven highly effective in mastering the use of computers and digital systems. Computer playfulness has been identified to influence perceived ease of use which is a direct prediction of technology adoption. It is, therefore, possible that computer playfulness would affect the use of institutional repositories among academic staff of universities. Computer playfulness is the near opposite of computer anxiety.

Computer anxiety is the feeling of apprehension that may come over a lecturer who is considering making use of institutional repositories. Computer anxiety is another construct of anchor factors that determine academic staff of universities perceived ease of use of information systems such as institutional repositories. Computer anxiety mirrors the general anxiety in that the individual experiencing it would feel

totally overwhelmed and uneasy at the thought of using the computer. This apparently means the higher the computer anxiety, the less the perceived ease of use of the institutional repository. Studies have shown that computer anxiety influences the perception of information users regarding the ease of use of an information system[13]. Therefore, computer anxiety has a negative relationship with perceived ease of use.

The implication is that creating awareness organizing training for information users on the essence and functions of institutional repositories may not be adequate to ensure that they make good use of the available resources. In addition to creating awareness and ensuring that users have all the right information about the objectives and functioning of the institutional repository, it is also important to pay attention to extraneous factors such as the anchor factors. The low use of institutional repository among academic staff of universities in Nigeria may be due to the failure of scholars and policymakers to take cognizant of fundamental issues such as computer self-efficacy, computer playfulness and computer anxiety among the users.

Previous studies around the world in general and Nigeria, in particular, have examined various factors that could be responsible for the low use of the institutional repository by academic staff of universities. Some of the factors that have been examined include attitude, discipline, awareness, institutional factors, demographic factors and social factors[14]. Despite all these studies and the recommendations, they made, the use of institutional repositories by academic staff of universities still remains low, especially in Nigeria.

This persistent low level of institutional repository use among lecturers has created the need to examine other factors that might be responsible for this problem. There seems to be a dearth of empirical studies on the combination of awareness and anchor

factors in the use of institutional repositories by academic staff of universities in Nigerian universities. In order to fill this gap in literature, this study will examine the influence of awareness and anchor factors on the use of institutional repositories by Academic staff of universities in Oyo state universities

1.2 Statement of the Problem

The use of institutional repositories offer a lot of benefits for academic staff of universities, their institutions, and the entire academic community. Academic staff of universities are mainly involved in teaching, research and community services all of which demand the use of quality information resources. When they are able to access relevant and quality information resources, it impacts positively on their quality of teaching, research productivity, and their overall ability to contribute to the development of the society. This is why institutional repositories that collate similar research works together, providing a central platform for related research findings are so essential for academic staff of universities. However, it has been observed that Academic staff of universities are often reluctant to deposit their research works in or seek search for information resources from their institutional repositories. This non-use of institutional repository has negative implications which include low awareness of research trends, poor quality of course materials and lack of visibility for academic staff of universities and their institutions.

Various reasons have been identified for this low use of institutional repositories among academic staff of universities. However, the problem persists. Some of the factors that have not been extensively researched in relation to institutional repositories are; level of awareness and anchor factors i.e.; computer self-efficacy, computer anxiety, and computer playfulness. Examining these factors could lead to

the development of more effective strategies to promote the use of institutional repositories for self-archiving among academic staff of universities. This study, therefore, examines the influence of awareness and anchor factors on the use of institutional repositories for self-archiving among academic staff of universities in Oyo and Osun states.

1.3 Aim and Objectives of the Study

The aim of the study was to investigate the influence of awareness and anchor factors on the use of institutional repositories by Academic staff of universities in Oyo and Osun state. In order to achieve this, the specific objectives were to:

i. identify the level of institutional repository use by academic staff of universities in Oyo and Osun states
ii. ascertain the level of awareness about institutional repositories by academic staff of universities in Oyo and Osun state;
iii. determine the level of anchor factors (computer self-efficacy, computer anxiety and computer playfulness) among Academic staff of universities in Oyo state;
iv. ascertain the influence of awareness on the use of institutional repositories by Academic staff of universities in Oyo and Osun state;
v. determine the influence of anchor factors on the use of institutional repositories by Academic staff of universities in Oyo and Osun state;
vi. ascertain the combined influence of awareness and anchor factors in the use of institutional repositories by Academic staff of universities in Oyo and Osun state;

1.4 Research Questions

The following questions will guide the study

1. What is the level of institutional repository use by academic staff of universities in Oyo and Osun state?
2. What is the level of awareness about institutional repositories by academic staff of universities in Oyo and Osun states?
3. What is the level of anchor factors (computer self-efficacy, computer anxiety and computer playfulness) among academic staff of universities in Oyo and Osun states?

1.5 Hypotheses

The following null hypotheses will be tested at 0.05 level of significance:

$H_0$1: There will be no significant influence of awareness (perception, comprehension and projection) on the use of institutional repositories by academic staff of universities in Oyo and Osun states.

$H_0$2. There will be no significant influence of anchor factors (computer self-efficacy, computer playfulness and computer anxiety) on the use of institutional repositories by academic staff of universities in Oyo and Osun states.

$H_0$3. There will be no combined influence of awareness and anchor factors on the use of institutional repositories by academic staff of universities in Oyo and Osun states

1.6 Significance of the Study

The study findings are expected to make significant contribution to theory and practice of librarianship in addition to contributing to the advancement of knowledge towards the creation of a better society. The study will also benefit key stakeholders such as management of universities, academic staff of universities and university libraries.

The findings of the study would be of benefit to university management in Nigerian universities and other countries in the developing world because of the expected boost in the use of institutional repositories and the return on investment which would accrue to the universities due to improved research output, better quality teaching and global recognition that comes with maintain a functioning institutional repositories. .

The findings of this research work would also benefit Academic staff of universities who will become more aware of the benefits of and how to make effective use of institutional repositories, both to search for research information and to host their own intellectual output. Promoting the relevance of institutional repository through the creation of the necessary awareness by libraries is also a way of promoting the research output of the Academic staff of universities

It would also be useful to the libraries studied and other university libraries in Nigeria as it will provide them with fresh insights into the factors that drive the adoption and use of institutional repositories by academic staff of universities. This will also allow them to develop appropriate strategies to enhance the use of these repositories

Finally, this research will contribute to the existing body of knowledge in the study of institutional repositories as veritable source of scholarly information resources and serve as a useful material on which further studies can be built.

1.7 Scope of the Study

The study examined the influence of awareness and anchor factors on the use of institutional repositories by academic staff of universities Oyo and Osun state. The dependent variable is the use of institutional repositories which will be measured by purpose of using and frequency of using institutional repositories by academic staff of universities. The independent variables are awareness and anchor factors. Awareness in this study is measured by constructs such as; perception, comprehension, and projection. The second independent variable is anchor factors which is measured by computer self-efficacy, computer anxiety, and computer playfulness. The population of the study will comprise academic staff of universities from selected universities in Oyo state. These are universities that have deployed functioning, web-based institutional repositories. The universities that meet this criterion include Ajayi

Crowther University, Oyo, University of Ibadan Oyo state, Obafemi Awolowo University, Ife and Redeemers University, Ede Osun state. Academic staff of universities are selected because they are perceived as authorities in their fields who regularly publish research works to expand the frontier of knowledge and advance their careers.

1.8 Limitation to the Study

The researcher encountered certain limitations in the course of the study. One major limitation is the reluctance of tertiary institutions to release data about the number of their academic staff. Another limitation is the workload of academic staff in the selected institution which often leave them with little time for other activities such as responding to research questionnaire. Both of these limitations led to the elongation of the time needed to complete the study. However, both limitations were overcome through the persistence of the researcher and support of appointed research assistants.

1.9 Operational Definition of Terms

Use of Institutional Repository: This refers to academic staff of universities in Oyo and Osun states accessing and retrieving relevant digital information resources from institutional repositories in their universities.

Frequency of Use of Institutional Repository: this refers to how regularly the academic staff of universities in Oyo and Osun state make use of the institutional repository to for various purposes.

Purpose of Use of Institutional Repository: this refers to the tasks which prompted academic staff of universities in Oyo and Osun state to make use of institutional repositories**.**

Awareness of Institutional Repositories: this is the consciousness of the existence, benefits, and relevance of institutional repositories to Academic staff of universities in Oyo and Osun states.

Perception of IR*:* this is the situation of academic staff of universities in Oyo and Osun state being aware of the existence of the institutional repository in their institutions.

Comprehension of IR: this entails the level of information available to academic staff of universities in Oyo and Osun state about the purpose of setting up the institutional repository and how it works in their institutions.

Projection of IR, this is the ability of academic staff of universities in Oyo and Osun state to understand the danger or benefit posed by the establishment of institutional repository by their universities.

Anchor Factors: these are the attitudes of academic staff of universities in Oyo and Osun state displayed towards institutional repositories. The anchor factors encompass several constructs such as computer anxiety, computer self-efficacy and computer playfulness

Computer Playfulness: this refers to the tendency of Academic staff of universities in Oyo and Osun state to interact spontaneously with digital information systems such as institutional repositories.

Computer Anxiety: this is the feeling of apprehension that may come over a lecturer who is considering making use of institutional repositories.

Computer Self-Efficacy: Computer self-efficacy is the perception of Academic staff of universities in Oyo and Osun state regarding their ability to make use of the computer for the purpose of information management and retrieval

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Chapter Two

Literature Review

This chapter presents the review of existing literature in relation to the subject of the current study. The review is conducted in order to provide a theoretical basis for the current study and highlight the gap in literature that necessitates the conduct of the current study. The chapter is presented under the following headings and subheadings;

2.1 **Conceptual Review**

2.1.1. Concept of Use of Institutional Repository

2.1.2 Concept of Awareness

2.1.3 Concept of Anchor Factors

2.2. **Theoretical Review**

2.2.1 Technological Acceptance Model 3 (TAM3)

2.2.2 Situational Awareness Theory (SAT)

2.3. **Review of Empirical Studies**

2.3.1 Awareness and Use of Institutional Repositories

2.3.2 Anchor Factors and Use of Institutional Repositories

2.3.3 Awareness Anchor Factors and Use of Institutional Repositories

2.4. **Conceptual Model**

2.5. **Summary of Gaps in Literature Reviewed**

2.1. Conceptual Review

This section review literature based on the key concepts in the study. The concepts reviewed are derived from the main variables in the study. These concepts include institutional repository and its use, awareness on institutional repositories, and elements of the anchor factors such as computer playfulness, computer self-efficacy and computer anxiety.

2.1.1. Concept of Use of Institutional Repository

Institutional repository is a concept that scholars have been unable to define in a unanimous manner because of its many complex aspects deriving from its origin, structure, purpose, ownership and use. However, the universal features in majority of the definitions of institutional repositories offered by scholars from around the world is that it is digital based and designed to handle electronic information resources of academic and research institutions. One of such definitions conceptualized institutional repositories as online archives developed to collect, preserve, and disseminate digital version of the intellectual output of academic and research institutions[1]. In the same vein, institutional repository is also defined as an online information system developed for holding the scholarly works of academic institutions[2]. Both of these definitions were derived from the origin of the institutional repository as a byproduct of information and communication technology. In a simpler definition which focused on the purpose of developing institutional repositories, scholars offered another definition which defined the as institutionally defined database for collecting storing, preserving and disseminating research out of an institution[3]. While these definitions focus on the driving force behind institutional repositories (internet) and the broad aims of developing institutional repositories

which is to maintain the intellectual output of academic and research institutions, other scholars focus on the structure of institutional repositories.

This is shown in the definition of a group of scholars who defined institutional repositories as a digital platform which facilitates the collection, organization and dissemination of the intellectual outputs of a particular academic institution. They are often described as digital storage systems which contain the intellectual output of staff, lecturers as well as students of universities[4]. In a similar definition, institutional repository was also defined as digital archive of an institution's intellectual product created by its faculty, researchers, and students that is accessible to end users both inside and outside the institution with few or no barriers to access[5]. This definition include another concept which is the institutional repository as an information system created to meet the needs of various users.

While no individual definition has not been provided to totally capture the whole essence of what institutional repositories stand for, all of the definitions reviewed here have taken from the four key features that have been described as salient to institutional repositories. That is, they are institutional based; contain scholarly works, are meant to be in existence for the foreseeable future and; predominantly open access. That is, the collections that make up any institution is dependent on the scholarly output of the members of such institutions. All the contents of the repository represent the intellectual output of bonafide members of the institution, be they researchers, lecturers or, students. The implication of this the content will reflect the orientation of the institution. The repository created by medical institution will contain predominantly medical resources and so on.

The other feature is that the content of an institutional repository is universally scholarly in nature. They are not usually made for recreational or general resources. Examples of the contents include undergraduate project works, postgraduate theses and dissertations, conference papers, inaugural lectures, and published research works from lecturers and researchers in the institution. Furthermore, the contents of institutional repositories are cumulative and perpetual. That is, they are designed to grow their contents and remain available to users for the foreseeable feature. Institutional repositories are not digital archives as depicted by some scholar. They are information systems designed to continuously add new collection in order to continuously provide their users with current and relevant information resources. These resources are usually provided with ass little restriction as possible.

The fourth feature of institution repository is that, although there are few exceptions, it is predominantly open access[4]. These key features usually form the theme of scholarly discussion on institutional repositories[6]. In addition, they show that institutional repositories are not simply digital containers or archives. In other words, they are not built as an end but means to achieve various ends as defined by institutions that created them. In line with this, scholars have also described institutional repositories as a set of services an institution offers to the members of its community for the management and dissemination of scholarly materials in digital or digitized formats created by the institution and its community members. This conceptualization firmly places the institutional repository among other tools adopted by academic libraries in their primary role of collecting, organizing, preserving and disseminating relevant information resources to various members of their parent institutions who are expected to make use of these resources to create new knowledge[6]

In order to fully appreciate the issues surrounding the use or non-use of institutional repositories, experts have suggested a proper analysis of its origin and development. In discussing the institutional repository, researchers usually trace its origin to various developments such as the advent of information technology and the open access movement. As a digital information management platform, it is plausible to claim that the available of relevant technology led to the emergence of the institutional repository as is it known today. The development of institutional repositories is linked to the emergence of the internet which created an unprecedented revolution in information communication. The opportunity offered by the internet for researchers, their peers and their audience to connect directly without the mediation of journal publishers led to the development of online archives where scholars can deposit their ongoing researches for comments and feedbacks before they were published in peer reviewed journals.

Expectedly, researchers took to these media of communicating researches and sharing ideas especially as it became obvious that any research manuscript, they shared with the global community of experts would receive immediate feedback in form of corrections, suggested areas of improvement and sometimes, commendations[7]. This process often improves the quality of the final published research and encourages collaboration among researchers. This idea was so appealing that the concept of Scholarly Skywriting which was designed to encourage researchers to make their manuscripts available to a global community for immediate access and feedback was introduced[8]. This process was however at the discretion of each researcher and was mostly done researchers in the science and technology. These personal and group effort of publishing preprints online later evolved to the earlier attempt at building institutional repositories.

The earliest functional institutional repositories were developed in at the turn of the century by institutions as a way of bringing together the researches that scholars have started posting online through their homepages and various subject based repositories that were springing up on the internet[9]. Indeed, it has been reported that the practice of scholars posting their works on private servers' date far back than 2002. Eventually, the use of the digital archive became widely embraced by researchers which led to a discussion on how it can be leveraged to liberate authors from the unfair agreements they have entered to with journal publishers. The improvement, driven by ICT, in the ability to share and access research reprints have shown that the stringent conditions laid down by journal publishers, instead of enhancing, were actually were hampering the access to published research articles.

This led scholars to recognize the need to explore new avenues to increase dissemination and access mechanism in order for their research to reach a wider audience and for themselves to be able to access more researches. It was thus proposed that digital preprint archives should no longer be limited to preprints but they should also be able to archive and distribute the final published articles which had gone through all the necessary peer reviews (post prints)[6]. The idea was for the preprint of all articles to be replaced with the final refereed post print version once it is available without any period of embargo. The main objective of the proponents of this idea is for all peer reviewed scholarly researches to be available free of barriers. Of course, it was recognized that there could still be technological barriers in form of Internet access, adequate computer systems etc. but journal subscription fees would no longer be one of the barriers. This is the origin of the open access movement[10].

The open access movement arose as a response to the perceived oppression of large academic publishers who charged institutions large sums to access research articles some of which are even authored by their own members. However, finance was not the only motivation, as some scholars felt the moral obligation to ensure that access to scholarly information is made available to all scholars around the world irrespective of their financial situation. The existing structure meant that only well-funded institutions can have access to quality research resources while less resourced institutions, particularly those from developing countries are limited in research due to lack of access to research materials. For such institutions and the countries they belong, it creates an unbreakable vicious cycle where they remain backward because they cannot access top quality researches necessary to conduct development inducing researches[11, 12] . Advocates of open access contend that since majority of researcher are funded by public fund, the product of their research activities should be made freely available to the public because it is indeed public property[7]. Open Access is therefore based on the philosophy that all research reports should be made freely available to researchers and anyone who wishes to access them.

Open access is a philosophy that advocates for the removal of price barriers and permission barriers, replacing it with royalty-free literature and minimal use restrictions. In order to achieve this lofty aim in a way that will not run contrary to the already familiar peer review process, the proponents of open access established new journal publishing strategies. Two complementary strategies to publishing open access were introduced. These are self-archiving and Open Access journals. These are also known as the 'green road' and 'gold road' respectively. These strategies were first recommended by the Budapest Initiative where the decision was made on what is made open, when it is made open and how it is made open[4]. 'What' refers to

whether the information being made open is either the author's draft manuscript, accepted manuscript or final published version; 'when' refers to the timing within which the information is made open; either prior to publication, immediately on publication or some period after publication and 'how' is largely seen as one of the business models[4].

Green Open access involves authors making their researches available online free of charge to anyone interested in using them. This is usually achieved by uploading a digital version of the articles to institutional repositories, disciplinary repositories, authors' websites, scholarly networking sites such as ResearchGate, Academia.edu etc[8]. Initially, only the preprints of peer reviewed articles can be uploaded in any of the aforementioned platforms, regardless of where the original article has been published[8]. However, with the advent of open access journals, where the author retains the copyright, the published article or "Article of Record" can also be uploaded. There are also some journal publishing agreements which allows the author to make their work available freely after an embargo period, typically ranging between six and 24 months, during which publishers have exclusive rights to dissemination[9].

Self-archiving has been found to be the most favourable model amongst authors in terms of visibility and speed in the circulation of ideas; and the most cost-effective and affordable means for funders, institutions and other stakeholders to enforce movement towards open access[13]. The gold route, also known as the Open Access Journals involve publishing in online journals that make their published content available freely to all, immediately upon publication[14]. Gold Open Access is a business model that generates profit through the payment of article processing charges

(APCs), which are paid by the authors or their academic institutions or funding agencies[15].

Open Access (OA) has brought a lot of changes to scholarly communication by facilitating the sharing of research reports in a way that has lifted the financial burden of accessing scholarly resources from the consumer. Universities and funding agencies have embraced open access as they have encouraged the products of research they sponsored to be made freely available to those who may need them provided they can get to a connected computer system[13]. The Open Access revolution has also reached academic publishers who are now offering hybrid models for scholars. While they still maintain the subscription model where the readers are made to pay for accessing journal articles. They are also providing the Open Access model where authors have to pay what is referred to as Article Processing Charges (APC) which enables them to retain the copyrights to their work and the right to share them with anyone free of charge[14] The twin factors of technological and financial/humanitarian consideration therefore provided a fertile ground for the rapid development of institutional repositories. Indeed, the role of technology would soon be subsumed under the overriding need to create equal access to scholarly publications.

Institutional Repositories (IRs) are one of the outcomes of the open access movement. It facilitates the Green Open Access strategy which is now being increasingly implemented by academic institutions for various reasons which range from providing unrestricted access to information resources to the streamlining of institutional research outputs. In addition to these, several studies have traced the wide adoption of institutional repositories to the factors that gave rise to the Open Access Movement in

the first place which is to reduce the problems of shrinking library budgets, increasing serials subscription costs, an unsatisfactory current publishing paradigm[6,16,17].

A major development that came out of this earlier push for easy access to research was the arXiV digital preprint archive developed by Paul Ginsparg in 1991. It was the first ever online archive for digital preprints[20] This archive was first initially named the Los Alamos National Laboratory (LANL). As to be expected, the archive was first created to deposit preprints of research in Physics. However, the service was later widened to include other subject areas in science such as Mathematics and Computer Science. It was a subscription-based service which means that researchers have to create a profile with personal and contact information. This enabled the archive to keep subscribers informed about new researches by sending e-mail notifications to researchers whose profile indicate they might be interested in the new research.

Those interested researchers could then download the researches they want from the archive through FTP server technology[21]. This early effort was so embraced that it has survived till date and has become a major success story in self-archiving. It currently houses millions of preprints which are widely used by researchers globally[22]. The success of the arXiv led to the development of the first software dedicated to the management of the intellectual output of academic institutions. However, the development of these software was eclectic with each institutions developing home made software to manage their outputs. A significant effort which led to the widespread adoption of institutional repositories is the establishment of the Open Archives Initiative (OAI).

This feat was achieved during the Santa Fe Convention. The convention was sponsored by a coalition of libraries and tertiary institutions and majority of the

attendees were computer scientists and digital librarians. There were also representatives of existing and emerging online systems, publishers and academic donors. The main goal of the convention was to come up with functional but easy to implement recommendations in order to ensure a low barrier entry for all digital archives[9]. At the end of the convention, scholars outlined a set of rules guiding the development of institutional repositories in a way that ensure uniformity and interoperability. The OAI would later lead to the creation of OAI-PMH (Protocol for Metadata Harvesting).

The momentum created by the Santa Fe convention led to the idea of developing institutional repository software which can be used by individual institutions to create their own digital resource repositories[6]. The first ever downloadable institutional repository software was the e-Print. Its development was modeled on CogPrints, a digital archive developed at the University of Southampton. However, e-print was conceived to be easily downloadable and installed software that implemented OAI standards and allowed the self-archiving of electronic scholarly resources[27]. The developers came up with the software based on the basic specifications that an institutional repository should have an interface for authors to submit their documents, a database to store and preserve the digital contents, and an articulated policy guiding documents submission and their preservation. In addition, the repository is also expected to have an OAI-PMH compatible interface to enable interested parties to mine data from the repository. All of these features were present in the e-Prints when it was launched by the University of Southampton in year 2000. This software is still used by many institutions around the world today including Nigeria[18]. The other popular institutional repository software is the DSpace.

The development of DSpace institutional repository software can be traced back to the year 2000 when the Hewlett-Packard Company (HP) awarded a grant of $1.8 million to the MIT Libraries to develop a dynamic repository software for digital research reports emanating from various multi-disciplinary research organizations. The end product of this collaboration was the free, open source and completely customizable software designed to fit the needs of any organization[28]. After a successful implementation at the MIT Libraries, the software was made available to libraries and institutions worldwide on November 4, 2002, under the terms of the BSD open-source license. As an open-source system, DSpace is now freely available to other institutions to run as-is, or to modify and extend as they require to meet local needs.

Though DSpace was not the first software available during that time, it became popular because it was the most general-purpose IR software for archiving various forms digital materials. This was possible because, right from its conception stage, the software was designed to be used by all types of libraries even when they share no resemblance to the MIT library where it was developed. It was also designed to be compatible with other system. The launch of the Massachusetts Institute of Technology (MIT) DSpace repository in 2002 and the subsequent release of the DSpace software under an open-source license had a significant impact on the development of institutional repositories as it encouraged institutions from around the world to begin installing, testing and evaluating the software for local use[29]. Today, DSpace is the most widely used repository software with more than 58,000 installations around the world.

The development of Eprints and Dspace was later followed by the appearance of other software such as Digital Commons offered by BePress, Fedora which was developed

by the Digital Library Research Group at Cornell University, United States originally under a National Science Foundation Grant and Greenstone digital library which is more popular for managing e-resources that building institutional repositories. EPrints and DSpace still remaining. By far, the most popular software for institutional repository development. This is due to a combination of factors among which is their ease of installation and maintenance as well as their suitability for all types of digital resources. For instance, DSpace provides for different sections of an institution (communities) to create and manage their collections[30]. This way each of the communities can come up their own collection management rules and regulations as they deem appropriate. For instance, they can determine who can deposit items into the repository and the types of materials that can be deposited.

On the other hand, the strength of the EPrints software lie mostly in its simplicity. Earlier reviewers of institutional repository software have reported that installing and operating EPrints requires little technical expertise as it does not require a lot of associate software like DSpace. In general, it has been argued that the current software is adequate and it is technically relatively easy to set up a repository. This seems to be the case particularly for plain e-print repositories. However, it was perceived as not as strong like powerful software such as DSpace or Fedora. It was believed that Eprint may not be able to handle a diverse and more complex digital resource that are expected to be part of modern institutional repositories.

While this may be true to some extent, constant software development which has seen improved versions being released periodically has taken care of most of the shortcomings. The recently launched version of Eprints 3.3.16 seems to have expanded its functionality to more effectively embrace non-formal e-resources. The

developers of e-prints are now promoting it as a solution to set up repositories with "research literature, scientific data, student theses, project reports, multimedia artefacts, teaching materials, scholarly collections, digitised records, exhibitions and performances"[31].

As stated earlier, the Santa Fe Convention of 1990 laid the groundwork for the Open Access movement. The establishment of the OAI-PMH framework for effective description and organization of digital resources and the subsequent development of various institutional repository software which enabled individual institutions to create their own repositories further liberalized sharing and access of digital scholarly resources. Institutional repositories were thus seen as effective means of eliminating all barriers to accessing digital scholarly resource. It also offers researchers the benefit of increase visibility and access to their research works. This development was considered a pragmatic one in view of the practices of journal publishers' arbitrary charges and tight control over the copyright to research products[32].

The formal takes off of the Open Access (OA) Movement took place at a convention in Budapest, Hungary, in 2001. The communiqué issued, which was later to be known as the Budapest Open Access Initiative comprehensively defined Open Access as: "free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself"[33].

This statement was a bold one because it was not just referring to preprints and grey literature but peer reviewed articles that have been published by journal publishers

who normally charged users for access to them. Achieving this aim required an overhaul of the business model of journal publisher which could not be carried out overnight even in the absence of resistance, which was rife initially. The solution suggested by the Berlin conference gave birth to two models of open access; the green and gold open access[34]. The green open access is also referred to as self-archiving which happens when a scholars make their researches available to the public free of charge either on their web pages or preferably, through institutional repositories. The gold open archives is when the scholar pays article processing charges to the journal publisher who then makes the published article available to users free of charge. In this model, the author does not relinquish the copyright to the journal publisher and he can share the published article as he deems fit. Such articles are also eligible to be uploaded into institutional repositories. In both ways, the chance to build repository collections is assured.

However, for the collection in the repository to be available over a long period of time and for the sake of easy and unrestricted access, the Bethesda Statement on OA Publishing 2003 laid emphasis on the need for research visibility and accessibility. It also conferred the significant task of sustaining open access on the institutional repository. The statement recommended "(at) least one online repository that is supported by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving[35].

The Bethesda conference laid a solid framework for to guide the preservation of digital scholarly resources, collection manage policies and the overall administration of institutional repositories. This effort is also augmented by The Berlin Declaration

of 2003 which also emphasized the fact that institutional repositories should not serve as archives or information warehouse by a function sources of information easily and readily accessible to targeted users. The convention also provide framework for the standardization in the management of open access institutional repositories[6].

What has been apparent from the analysis made so far is that institutional repositories were designed to provide access to quality scholarly resources in digital format. As promoters of institutional repository urged individual institutions to create repositories, they were also looking at a future where all these individual repositories are networked together to create a global information source that can be accessed without restrictions. This was evident in one of the early studies on repositories. It was envisaged that when enough numbers of authors worldwide deposit their articles in their respective institutional repositories, the repositories which are expected to be compatible can then be mined to create a large global information system where the contents are freely searchable and accessible online by everyone[34].

This statement is referring to the OAI-PMH which was established to achieve interoperability of various repositories. This will allow service providers as well as information to cross search these archives. The future of e-prints archives and the Open Access movement lay in the creation of institutional repositories for academics to self-archive their published articles (or preprints to later be replaced). And who better to manage these institutional archives than the libraries themselves who had experience in collecting, managing, cataloguing and preserving information resources.

Various countries of the world have several initiatives designed to ensure the viability, sustainability and usability of institutional repositories. One of such initiatives is the Focus on Access to Institutional Resources (FAIR) launched by the UK Joint

Information Systems Consortium (JISC) in 2002 to study the processes involved in providing access to institutional digital resources[33]. The study report show that the major issues in the deployment of institutional repositories include; clarity of purpose, quality control, metadata and semantics, and copyright issues among others[34].

The FAIR initiative lead to the creation of institution repository projects such as Securing a Hybrid Environment for Research, Preservation and Access (SHERPA) and the Rights Metadata for Open Archiving (RoMEO) and many other offspring initiatives. The major aim of the SHERPA project is to develop and promote a favourable environment for the research output emanating from the United Kingdom to be made available and accessible globally. Towards this end, the project has set up numerous institutional repositories in the United Kingdom. Its activities has also yielded a large body of information resources useful for institutional repository advocates.

These materials are freely available online and are being used by many institutions worldwide as guides in the institutional repository development projects. The project was later renamed SHERPA Plus to reflect its expanded activities which include capacity development through online and offline courses, seminars, and regular newsletters[37]. The RoMEO project on the other hand is mainly dedicated to issues such as copyright issues concerning the deposit of digital resources in repositories. The project created and maintains a database of copyright policies of various commercial publishers which is a valuable resource for institutional repository manager for guidance on what to include in the collection and the level of restriction necessary for each item[38]. These two initiatives were later combined to form the SHERPA-RoMEO[36].

The contribution of the Netherlands to the development of institutional repositories was the Academic Research in the Netherlands Online (ARNO), a project designed to develop and implement digital repositories to preserve research outputs of the country's universities. The project which ran from 2000 to 2002 was later succeeded by Digital Academic Repositories (DARE) initiative which had the task of coordinating the development of institutional repositories on a national scale. The project which ran from 2003 to 2006 succeeded in linking all thirteen universities in the Netherlands to form DAREnet. As a result, The Netherlands has a 100% coverage rate of institutional repositories[34]. The United States also played a great role in institutional repository development. The development of DSpace repository software was done at the MIT and this in itself has been a major contribution to the institutional repository landscape. The USA currently has 905 institutional repositories nationwide and in terms of simply numbers more than any other country in the world[39].

For Africans, the most prominent organisation working for the development of institutional repository is the International Network for the Availability of Scientific Publications (INASP). This organisations offers sensitisation workshops aimed at encouraging major decision makers to buy into the idea of establishing institutional repositories and how lecturers can get involved so that the repositories can be populated and used. The efforts of these organisation in promoting the developments is an indication of the importance of institutional in the academic environment.

However, for institutional repositories to serve as a global network of information resources, experts have recognized the need to outline policies, guidelines and standards that must be followed by all institutions in setting up their repositories. All these are being undertaken by various bodies and institutions all over the world such

as the Directory of Open Access Repositories (OpenDOAR), Registry of Open Access Repositories (ROAR), and the Registry of Open Access Repository Mandates and Policies (ROARMAP) [34]. The Directory of Open Access Repositories (OpenDOAR) is an authoritative online global directory of open access institutional repositories. The institutional repositories aggregator was a joint effort of the University of Nottingham in the U.K. and Lund University in Sweden to support and strengthen the academic and research activities of institutions worldwide.

OpenDOAR brings together all open access institutional repositories worldwide by creating a directory of links and internet addresses that enable users to search through all these databases and retrieve the information they need. OpenDOAR specifically chose to collect and provide information on repository sites that fully embrace the concept of Open Access to full text resources[40]. OpenDOAR administrators harvest and allocate metadata for these sites to allow categorisation, analysis and exploitation of repositories[12]. To ensure quality, detailed investigations of each site or repository are conducted to ascertain accessibility and full-text content provision before each one of the is added to the directory.

In summary, the activities of the OpenDOAR include; surveying the expanding field of academic open access research repositories and categorise them in terms of location, content and other measures. The organisation also produces a descriptive list of open access repositories relevant to academic research and provide a comprehensive and authoritative list for end users wishing to find particular types of, or specific repositories. In addition to these, it also provide a comprehensive, structured and organised directory with clear update and self-regulation protocols.

Most importantly, the organisation supports open access advocacy activities within institutions and globally[41].

The OpenDOAR on the other hand is a website that provide accurate and verified information for researchers and developers of institutional repositories globally. The website not only serve as information gateway for users but it also provides a bird-eye view of the global institutional repository development trajectory. It is possible to determine at a glance the number of repositories by country, the most adopted software for institutional repository development, types of collection in institutional repository as well as the subject areas commonly uploaded into them among other useful statistics. As a result, it is rare to find a research on institutional repositories that does not cite data from OpenDOAR statistics to understand developments in IRs[41,29].

The Registry of Open Access Repositories (ROAR) is another key resources in the development and growth of institutional repositories globally. The term of reference of the ROAR is very similar to that of OpenDOAR. ROAR is a searchable global registry of open access institutional repositories. It indexes repositories as they appear online and adds them to its database showing date of creation, location and contents. The aggregate of this constantly evolving data provides a glimpse of repositories development around the world. Unlike OpenDOAR, ROAR automatically harvests institutional repositories as they come online thus providing real time information to users[42]. Another factor that distinguishes ROAR form OpenDOAR is that ROAR also indexes metadata only repositories, partial access repositories and open access journals. As a result, statistics it provides is usually higher than what is available in OpenDOAR[42].

The Registry of Open Access Repository Mandates and Policies (ROARMAP) one of the tools used to monitor the efforts of institutions to ensure that their members are depositing their research into institutional repositories. Due to the reluctance of lecturers and researcher to deposit their research into institutional repositories, universities, research institutions, and research funders began to institute what is mandates. The purpose of mandates is to compel scholars to contribute their research to become part of their institutional repositories. It is now common for institutions and funders to mandate or encourage researchers under their authorities to publish open access and deposit their researches in institutional repositories. ROARMAP is thus created as an online platform for registering these policies. The site provides a searchable registry of open access mandates and policies adopted by universities, research institutions and research funders that require or request their researchers to make their peer-reviewed research more accessible by depositing the in institutional repositories. The ROARMAP is thus a source of useful information for institutions wishing to create open access mandates.

The platform has also developed a downloadable template for open access mandate. The mandates outlines issues such as who should make scientific information openly available; what should be made available; the importance of creating open access research; the acceptable embargo period before research outputs are to be made freely available online; acceptable repositories where research outputs should be deposited; and what is expected of authors from the mandate. As of 2022, about 1,200 OA policies have been registered on the ROARMAP by universities, research institutions and research funders across the world, with only 35 from Africa and just one from Nigeria. The only institution in Nigeria to register an open access policy is Covenant University[19]. Studies have shown that without a well-implemented mandatory policy,

levels of open access publishing and by implication, the development of institutional repositories will be negatively affected[44].

Institutional repositories have become an integral part of the information architecture in all academic and research libraries across the world. Statistics available on the website of the SherpaRomeo project, an organisation that tracks the global development of institutional repositories revealed that there were 3240 repositories across the world with the highest number of IRs from Europe with 45.6 % (1,479) of global repositories; Asia with 19.7 % (639), North America with 18.8 % (598); and South America with 8.6 % (278) IRs. Besides, there were 143 IRs in Africa constituting 4.4 % of the 3240 IRs available the world over. The highest number of IRs in Africa were from South Africa with 22.4% (48); Kenya with 16.1 % (45); Nigeria with 13.3% (32); and Algeria with 9% (13) institutional repositories[86]. A bibliometric analysis was also conducted based on LIS abstracts databases further revealed that most IR studies are from the US and UK, followed by India, Australia and Spain. The study also pointed out that developing countries lagged far behind not only in establishing IRs but also in publishing research about them. scholar observed that, although statistics from online institutional repository aggregator websites such as OpenDoar presents a picture of steady growth of IRs implementation around the world since 2005, the data does not tell the story as some regions are seeing far more growth than others[87]

Although there has been several open-source software developed for the implementation of institutional repositories, Dspace, is the most widely accepted repository software used by institutions the world over is. 44% of existing institutional repositories around the world are based on the Dspace software. It is followed in term of popularity by E-prints with 13.7% usage; and Digital commons at

4.7%. In Africa, Dspace is used by 74.8% of the 142 repositories in the continent; followed by E-Prints with 8.4% (12); and Greenstone with 2.8% (4) users in the African continent[42]. In Nigeria, there were 30 institutional repositories registered on the OpenDOAR database as at February 2021. 80% of these were using Dspace, 13% were using Eprints while the remaining 7% used other software[86]. Researchers have commented on the increasing popularity of the Dspace repository software pointing out that; between 2008 and 2012, the adoption of the Dspace software had a growth rate of 144.35% in usage preferences by institutions across the world; followed by E-prints (38.91%), and OPUS (9.80%). Institutions who had adopted other software such as Bepress, Wildfire, ETD-db, and HTML were reported to have abandoned them and shifted to Dspace because of positive review it was getting from users. The reason why the Dspace software is preferred by most institutions has been attributed to its simplicity and robustness. The software is easy to configure, and it is capable of handling all types of digital content including PDF, word, JPEG, and MPEG files. However, the most popular archived content types in the 3240 IRs across the world including Africa still remain journal articles, theses and dissertations, book chapters, conference and workshop papers, and unpublished reports and working papers[3].

From the background information on the origin and development of institutional reviewed so far, it can be deduced that they are created with different objectives and purposes in mind and therefore, their functionality is different. The functionality refers to the main motivation behind the creation of the repository and consequently its main purpose or function[51]. Examples of repository functionality are: increased access to discovery of electronic resources, preservation of resources, new modes of dissemination and/or publication, institutional asset management and promoting sharing and re-use of resources.

There are four ways of understanding the role or functionality of IRs. The first is to see institutional repositories as one of the best ways to provide access to the results of scholarly funded research in order to maximize its impact. The second is its function to increase and diversify the digital scholarly materials that are available for research, teaching and learning. The third is to see institutional repositories as a tool for increasing the visibility of an institution's scholarly output while the fourth is that it serves as a necessary and essential infrastructure for reforming scholarly communication and publishing. While researchers are also concerned with the technical functionality of the IR software, the most widely used criteria for effective functioning of IRs is its ability to meet the information needs of the target users. As a result IRs often house diverse information resources.

As the development of institutional repositories spread globally, institutions began to develop diversified IRs designed to fit prevailing cultures, needs and demands of the user community. As a result, the structure, contents and services have become varied across the world. Despite the fact that software is free, the financial resources needed to acquired required hardware as well as the technical skills to implement and maintain repositories are not available equally to libraries around the world[6].

As a result, studies that have examined the content of institutional repositories have reported diversity in what can be found based on the type of institution, their financial capability and scholarly orientation among other factors. The contents of the IRs tracked were categorized under the following content types: journals, electronic theses and dissertations (ETDs); preprint articles; working papers and technical reports; conference proceedings and presentations; e-books; learning objects; multimedia files (digital audio/video); datasets; pictures (images); digitized archival documents and

university records (historical texts and primary resources); non-scholarly institutional publications; undergraduate student work; graduate student work (non- ETD); and course content (syllabi, assignments, lectures)[51].

In a survey of the contents of institutional repositories in American tertiary institutions, it was found that over 40% of the content was student produced work in the form of electronic theses and dissertations. Both formal and informal scholarly output accounts for 37% of the content. Of this about 13% are e-prints (pre and post) and e-books, a little over 20% of grey textual literature in the form of working papers and technical reports and only about 1% was more informal type resources such as conference presentations, learning objects, podcasts and datasets. Increasing number of institutional repositories are now dedicated to research data and some are also used to distribute software[52].

Figure 2.1 shows that at global level, as reflected on OpenDOAR, digital materials, such as: journal articles, theses and dissertations, books and book chapters, datasets, multimedia and audio-visual material, learning objects, unpublished reports and papers, conference and workshop papers, patents, software, and bibliographic references, are being populated in IRs. Researchers noted that, the goal of OA is "open access to peer-reviewed journal literature", which was previously inaccessible due to financial barriers. With journal articles representing over 71% of repositories content, it can be deduced that institutional repositories have become reputable sources of scholarly information[8].

Available data on the SherpaRomeo websites shows that majority of content archived in institutional repositories across the world is in the form of journals with 1447 (21.73%) out of the 2168 total content; followed by theses and dissertations with 1142

(17.15%); and unpublished reports and working papers with 803 (12.06%). On the other hand, the least preferred types of contents include patents with 61 (0.92%), and software with 34 (0.51%)[20]. This indicates that the adoption of the Dspace software was most based on the anticipation of future diversity of archived resources and not current need for most libraries especially in Africa.

Study indicates that Institutional repositories in Africa mostly contains undergraduate and postgraduate students' thesis and dissertations, and faculty's publications including journal articles, community/ consultancy services articles, and a few electronic books[21]. This has been corroborated in other studies which assessed the current trends in the representation of students' work in IRs, where it was also observed that electronic theses and dissertations were the most common forms of student scholarship in IRs, followed by undergraduate projects, peer reviewed journal articles, conference papers, and students' research papers[22].

The search from OpenDoar further indicated that the most popular subject areas archived in repositories across the world are multidisciplinary, Health and Medicine, History and Archaeology, and Business and Economics. In Africa, multidisciplinary, and Health and Medicine were also amongst the most popular archived subject areas. The least archived subject areas in IRs across the world are Civil engineering, Electrical and Electronic Engineering, and Architecture. Both Electrical and Electronic Engineering, and Architecture were also the least archived subject areas in African repositories.in Nigeria, the most archived subject is also multidisciplinary followed by Technology (General) and Science (General)[23].

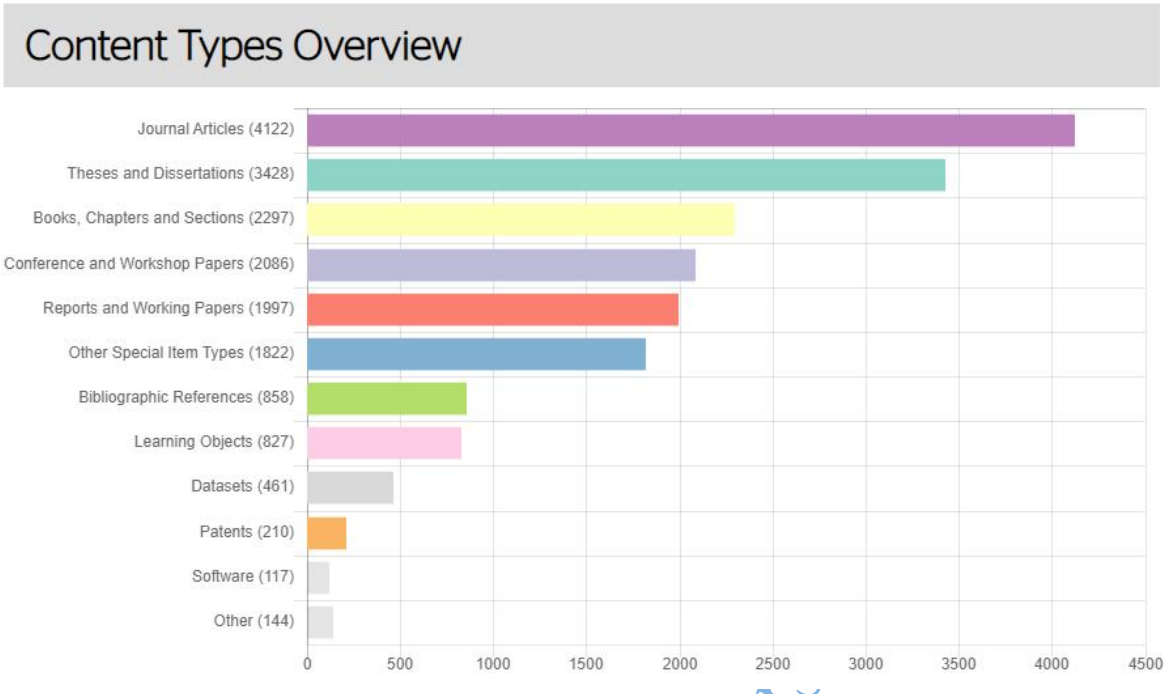

Figure 2.1: Content types deposited in IRs worldwide (Source: OpenDOAR)

Source: OpenDOAR: Content Types in OpenDOAR Repositories - Worldwide (2022)

Institutional repositories have received wide acceptance in academic institutions around the world and it is also growing in Africa, particular Nigeria which ranked third with 32 indexed repositories behind South Africa (48) and Kenya (45)[24]. In addition, there is ample evidence that Nigerian institutional repositories are well resources with available statistics showing that the University of Lagos institutional repository has over forty thousand items and counting[25]. The logical outcome of this is that scholars such as lecturers and users are expected to make use of institutional repository. However, the use of institutional repositories by lecturers has several faces each of which has to be properly analysed in order to form a true picture of IR use among lecturers.

The use of institutional repositories can be viewed from the basic perspectives of the purpose of use and the frequency of institutional repository use among lecturers. For academic institutions, the purpose of establishing and using institutional repositories

as outlined in a systematic review of literature regarding the use of institutional repositories include; the collection, organization, and preservation the institution's scholarship, demonstrating institutional commitment to open access principles, enhance collaboration and communication by other scholars inside and beyond institutions, contribute to enhance visibility of institution locally and globally, increase web ranking of the academic institution, efficiency in teaching and knowledge sharing in academic institutions, o improve community outreach nationally and globally, dissemination of research and knowledge[10].

It is logical that, while the institution aims to achieve certain goals with the development of institutional repositories, the lecturers too, as key stakeholders, should have certain purposes for using them. Generally, lecturers can make use of institutional repositories for various purposes including publishing scholarly research, disseminating current information, and obtaining online resources, depending on the preferences of the lecturers[10]. While the frequency of using institutional repository is subjective and measured differently in literature, the purpose of using institutional repositories can be broadly categorized into two. Lecturers use institutional repositories for the purpose of self-archive and for the purpose of retrieving information for research, teaching and self-development. Out of the two purposes, the use of institutional repository for self-archiving have commanded more attention among scholars.

Scholars have suggested that an effective institutional repository development requires coordination among librarians, information technologists, archives and records managers, university administrators, and policymakers. One of the earliest concepts for IRs was that lecturers and researchers would deposit or self-archive their

own work prior to or after peer review. This method, also known as self-archiving, would ensure that the institutional repository keep developing and is able to meet the information needs of the target users[26]. For institutional repositories, content is king.

Institutional repositories and the institutions that own them are judged based on the richness of their contents. The Ranking Web of Repositories is one of the online bibliometric tools designed to measure visibility of content deposited in the repositories and the quality of an institution's research output[27]. Universities with high quality output on their IRs are likely to be ranked higher Since they are designed to hold the intellectual output of a particular institutions, it is important for the members of such institution to contribute their intellectual output to the repository. This is important to the achievement of the aims of establishing the repository in the first place. When a repository is used regularly by lecturers in an institution to deposit their intellectual output, it will become recognized as the authentic representation of the intellectual output of any institution. Works of academic importance that might have been lost if left to individual scholars are archived and kept safe in cloud storage facilities which ensure their perpetual availability. Experts have reiterated the fact that there is no argument about the benefit that institutions can reap from having an institutional repository. IRs have proved to be platforms that disseminate vast amounts of research faster at a much lesser cost when compared with subscription databases[17].

Before the advent of open access and proliferation of institutional repositories, research works published by the members of a university's community were held tightly by commercial journal publishers who, by the virtue of the monopoly they hold over scholarly output, often set subscription fees so high to the extent that the

only a few well-funded libraries can afford them. In addition to this, researchers were also unable to exploit the grey literature available in their institutions. These are documents that normally do not pass through the formal publishing process but have great potential to advance frontier of knowledge were inaccessible before the advent of Open Access[28].

Lecturers are expected to use the institutional repository for self-archiving. This is the practice of depositing intellectual output into institutional repositories so that it can be used to form a rich body of knowledge to be used by others. The origin of institutional repository has shown that scholars, i.e., lecturers and research are integral to its development and sustainability. Scholarly activities give rise to the need to produce and share information. Lecturers create scholarly materials through activities such as teaching, research, supervising students, participating in conference, seminars, and workshop. This knowledge is meant for public consumption in order for it to be used to create new knowledge. Institution repositories offer the opportunity to achieve the all-important visibility for lecturers' intellectual output.

Self-archiving in institutional repositories enhance the academic recognition of the lecturers and that of their institutions. When lecturers upload their research work to their institutional repositories, they have effectively made such research work visible to the world. Researchers have pointed out that institutional repositories with the best contents are good advertisement for the parent institution as members of the global academic community can easily gauge the depth and quality of its scholarship. Individual authors also achieve recognitions as academic sites like Google scholar index the research output of each scholar and rank them based on the number of citation received. It has been proven that research that are openly accessible receive

more citations than those behind pay walls[29],[30]. The net effect of this is that the reputation of such lecturers will continue to grow among their peers and their names will be recognized by researchers worldwide. In this way, institutional repositories confer recognition on both institutions and their individual members. Effective use of institutional for self-archiving is also complemented by the use of institutional repository to obtain research information.

A well-used institutional repository can also serve as an administrative tool for institutions and funding agencies. The parent institution would find the IR useful as an accurate tool to assess research productivity of lecturers and researchers. Additionally, research funders can use reports based on IRs to assess and allocate research funds to applicants. This is possible because of the high visibility for the institutions research which is guaranteed by institutional repositories. IRs, being web based and open access, are available to all web surfers who can come across these resources sometimes by chance or by recommendation from others who may also have 'stumbled' upon it on the internet. However, experts have warned that visibility and accessibility of information resources depend on the ability of institutions to harness their research output and make it available on the web[29]. Institutions with the aim of achieving online visibility through the deployment of institutional repositories should be able to encourage its community members which include lecturers, researchers and students to willing contribute or make their intellectual work available for self-archiving[31]. It is expected that lecturers should be easy to convince to use institutional repositories for the purpose of self-archiving because of what they stand to gain from depositing in institutional repositories.

The establishment of open access mandate by institutions compelling lecturers in their employment to deposit their research in institutional repositories however, indicates the reluctance shown by lecturers in depositing their research outputs in institutional repositories[32]. Getting lecturers to deposit their research in institutional repositories has been and is still met with various obstacles from lecturers around the world[33]. Studies conducted in the United States, India, and others revealed faculty members' reluctance to submit their scholarly works to institutional repositories established by the institutions[34,35]. In a study which focused on the members of the American Association of Research Libraries (ARL), it was discovered that the majority of lecturers at the institutions have not contributed their research to their institution's repository[10]. In a similar study, researchers also discovered that fewer than 30 percent of lecturers in American universities and research institutions contributed to institutional repositories[36]. In Japan, it was also reported that lecturers in Japanese universities often show high enthusiasm when institutional repositories were first introduced to them but later seem to lose interest in depositing their research. It was found that the frequency and purpose of using institutional repositories usually witness a decrease over time.

Lecturers often start with using the institutional repositories to archive their recently published research and would the repository every time they have a new publication. However, this would later be replaced by occasional posting of incomplete or poor-quality works. The result is that the institutional repository become populated with outdated and low-quality resources. This practice was also observed by other scholars who stated that lecturers and other researchers may post substandard content that does not meet quality criteria. In addition to these, some lecturers have been known to be occasional users of institutional repositories due to the fact that they wait until they

have a batch of published research before, they upload all of them instead of a continual addition which ensures that research gets to the users as soon as they are produced which is the original aim of the repository[35]. Most of the studies conducted in Africa also indicates low use of institutional repositories

Studies conducted on the use of institutional repository for self-archiving by lecturers in Africa found that many of them do not share or disseminate their research after it has been published through the peer-review system because, in most cases, they are unaware of the benefits of informal networks or how to use them to promote their study. Scholars also examined faculty participation in the development of institutional repositories as it has been established that, without the full participation of member of faculty, it would be near impossible to build enough contents for effective institutional repositories[90]. Although many academic libraries across the world have successfully implemented IRs, several studies indicate scholar's reluctance to archive their work in IRs. In fact, the current IR deposition estimates indicate that only 15 to 30% of eligible scholars and researchers deposit their work in institutional repositories[91]. Several reasons have been cited for the poor usage of IRs. A study conducted on the attitude of Malaysian lecturers towards self-archiving in institutional repositories indicated that most of them are not using institutional repositories because they are not aware of the significant value of repositories to their scholarly endeavours[92]. This attitude has been attributed to lack of adequate effort on the part of librarians and institutions to create better awareness about the institutional repository and the benefit that it holds for the scholars[16]. Researchers in Nigeria also reported that the poor attitude of lecturers towards depositing in the IRs was due to lack of awareness, epileptic power supply, fear of plagiarism, copyright violations, and not being able to publish works submitted in IRs[93],[94].

The issue is that not all researchers are aware of these channels or how to use them, resulting in a slower-than-anticipated shift in the model of scholarly communication. The rapid expansion of academic social networking sites and institutional archives necessitates an understanding of their populating mechanisms. The scholars reiterated the importance for African researchers to self-archive their published research papers, as this will increase the global accessibility of publications from the African continent. In other words, this will provide African authors with the opportunity to collaborate and exchange ideas with authors from the industrialised world[37].

There are however, some exceptions as some lecturers in Africa are reported to be frequent users of institutional repositories. Research conducted in Ghana revealed that the majority of the respondents, all of whom are lecturers, use the institutional repository for depositing and retrieving scholarly resources while others use the repository for information retrieval only[38]. While this study shows a high level of use, it must also be pointed out that nearly half of the lecturers in the institution are still not depositing their published works in the institutional repository. Many of the institutional repositories created by African universities in general and Nigeria in particular have remained anonymous due to lack of contents

In a study which investigated the attitude of lecturers to self-archiving practice in Nigeria, it was found that lecturers often upload their research to academic social networks such as ResearchGate more than they do to institutional repositories. In addition, researchers reported that more that half of their respondents expressed reluctance to deposit in institutional repositories and other self-archiving platforms even when it is mandated by funding body or institution[39]. This goes to show the extent of the challenges faced in developing viable institutional repositories. However,

scholars have attributed the reluctance of lecturers to deposit research and other scholarly works in institutional repositories to several factors.

One of the reasons for reluctance of lecturers to engage in significant self-archiving include the complexity of institutional repositories, the risk of copyright infringement, the worry of plagiarism, the fear that low-quality content in the IR may taint the study, and the question of whether contributing to the IR is equivalent to publishing. Others were perceived quality of self-archived resources, disciplinary culture and procedures, lack of time, lack of technical skills, and promotion concerns[40]. While all of these are issues pertaining to the opinion and ability of lecturers, there are also institutional or organisational issues that affect level of self-archiving.

A scholar provided a gloomy assessment of IRs, emphasising faculty indifference, ineffective promotional strategies, deployment controlled by university policy rather than user demands, insufficient staffing, and inadequate support services[41]. All of these have combined together to turn institutional repositories into archives into which irrelevant and obsolete materials can be found. It has thus created the impression among lecturers that any information resources uploaded to institutional repositories has been effectively put out of circulation. This perception is further reinforced by the fact that many institutional repositories in developing countries such as Nigeria are not available online and even members of the institution face several issues in accessing them on the university campus[42]. However, while self-archiving among lecturers may not be up to the expected level, there is ample evidence to suggest that institutional repositories, especially in Nigeria has built enough collection to make them viable for the purpose of being used as information systems.

Institutional repositories are, ultimately, information systems designed to be used as a tool to discover research information and to help researchers in creating more knowledge. It is therefore expected that lecturers should also use institutional repositories for the retrieval of research information. The availability of institutional repository in an institution facilitates knowledge sharing. With IRs, scholarly works are located in one place for unrestricted access, which makes it more convenient to share and access literature without any barriers[10]. Besides, IRs ensure the all members of an institution have access to relevant information resources capable of stimulating further research and enhance knowledge development. The gathering of research outputs of an institution in one place allows members of the institution to know what others are doing and learn from how they are doing it.

Furthermore, the networked nature of IRs also gives scholar the opportunity to access the research output of other institutions. Institutional repositories make it possible for scholarly resources to be accessed and retrieved freely on the Internet without barriers. This means that more people can access and use research publications for developing knowledge without any restriction. In this way research can connect with collaborators, mentors and mentees from their own institutions as well as from other institutions irrespective of geographical locations.

The reason why this is significant is that, before the advent of institutional repositories, vast amounts of intellectual output had remained invisible to academics and researchers within the global community. This greatly hampered continuity of research and led to duplication of research projects. Also, the restriction on available research output meant that only a few researchers in developed countries can conduct research on significant issues as researchers from developing nations may not even be

aware of these researches not to talk of how to conduct them. With IRs, there is an expansion in the range of knowledge being shared[43]. With all the benefits associated with the use of institutional repositories by lecturers, it would be assumed that the use of institutional repository would be a straightforward affair.

Academic institutions deploy institutional repositories to create access to research articles and other relevant resources and information so that lecturers can use them for the purposes of research and education. These university repositories provide lecturers and researchers with a broader understanding of the research conducted by individuals or groups in a particular field of study. It is therefore a useful tool for lecturers who are given the opportunity to download articles from various repositories and conduct a literature analysis to discover knowledge gaps they can pursue for their own research[44]. The institutional repositories include dissertations, theses, course notes, conference papers, symposiums, periodicals, review articles, learning objects, and other types of grey literature all of which are available for free. However, available literature suggests that there are a lot of issues surrounding the use of institutional repositories among lecturers especially in developing countries.

Researchers from Kenya reported that majority of academic staff at Egerton University are making use of the institutional repository developed by the university. This non-use was attributed to lack of awareness about the existence and content of the institutional repository. In addition, researchers also cited lack of the necessary skills needed for information retrieval from institutional repositories[45]. The same scenario is reported among lecturers in other Kenyan universities with research indicating that academic researchers at Kenya's five public universities utilise institutional repositories infrequently[46]. In Tanzania, it was found frequency of use of

institutional repositories among postgraduate students is below average as it was reported that majority of the respondents used institutional repositories occasionally or often/at least while there are also others who rarely use institutional repositories[47].

Researcher in Nigeria have also reported a mixed level of institutional repository use among lecturers in the country. A study which examined the use of institutional repositories in two universities in Nigeria focusing on Covenant University and University of Ilorin, two universities with well-resourced institutional repositories, found that the analysis that there is a higher level of IR resources at Covenant University while the institutional reported of UNILORIN recorded low usage by lecturers. The frequency of use of the repositories was also found to be different. It was found that the frequency of usage of institutional repository is higher in Covenant University when compared to UNILORIN[48].

In another study, it was reported that most of the lecturers in Nigerian universities knew about IRs, and they used them frequently for information retrieval. They are also reported to submit their research outputs to IRs on an annual or biannual basis. In addition, most of the lecturers had shown preference for mediated archiving probably due o challenges faced in self-archiving. Regarding the purpose of use, it was reported that the lecturers use information resources to produce lecture notes and research works. The lecturers who were not using the IR cited issues such as the fear of copyright infringement, plagiarism, and a lack of awareness[49].

The mixed report on the use of institutional repositories among lecturers has generated a lot of research interests with scholars formulating and testing various hypotheses to determine the key factors that can boost or hinder the use of

institutional repositories. In this study, the factors examined include awareness and anchor factors

2.1.2 Awareness of Institutional Repository

Awareness as a concept is multidimensional with different levels. However, the definition of awareness often depends on how far the author wishes to in articulating all issues relating to the concept of awareness. In some studies focusing on awareness as a factor in the use of institutional repositories, no effort is made to define or conceptualized awareness. What was often found is an allusion to 'knowing about the existence of…'[50]. In some other studies, respondents are simply asked to answer 'yes' or 'or' to determine whether they are aware of institutional repository or any other information systems[51]. This approach may not yield a finding capable of solving the issue of low level of institutional repository use. Various definition of the concept of awareness has shown that it cannot be measured by a simple yes or no response.

In one instance, awareness was defined as an individual's access to information or knowledge regarding the existence of a particular item, idea or any other thing. It is also described as the knowledge about something that exists or understanding of a situation or subject at the present time based on information or experience[52]. From another perspective, awareness is described as the knowledge or perception of a situation, fact consciousness, recognition, realization, grasp and acknowledgement concern about and well-informed interest or familiarity in a particular situation or development[53]. In another context, awareness is defined as the condition or state of having the knowledge of the existence or essence of something. More specifically, it is the ability to directly know and perceive, to feel, or to be cognizant of certain

phenomena. What these definitions imply is that awareness can be seen as simply knowing or having information about the existence the institutional repository.

This can be misleading as conceptualization of awareness as 'knowing about' the existence of information repository has led many libraries and scholars to adopt the wrong approach to the promotion of information repositories and indeed other library services. Studies have shown that majority of the 'marketing strategies' adopted by libraries in promoting their resources are not effective[54]. This is obvious in the fact that, despite various reports of promotional activities in libraries and information centers , majority of them still experience user apathy with their potential clientele often opting for less reputable and often more expensive sources of information[55, 56].

The goal of the creating institutional repositories is to co-opt lecturers and other members of academic institutions into building an information system to manage the collective output of the institution and to serve as an information reservoir from which all members and the general public, where applicable, can draw scholarly resources for the creation of more knowledge.

As a result, the promotion of institutional repositories by librarians is an exercise designed to draw active response from the targeted audiences such as lecture. It is a call to action rather than a mere information sharing or public service announcement exercise. As submitted by a group of Nigerian scholars, the motive behind creating awareness for library products and services such as institutional repositories is so that the targeted users can make use of them. This implies that if there is no awareness of library services, there will be no use as well. In other words, awareness triggers use of information repositories[57]. However, encouraging lecturers to make use of

institutional repositories may go beyond the basic level of simply informing them about the existence of institutional repositories.

In line with this, awareness is described as the knowledge gained through one's own perceptions or by means of information. It also entails having knowledge of, appreciation of, recognition of, attention of, perception of, consciousness of, acquaintance with, enlightenment with and familiar with new trends or issues. Awareness of any system or technology goes with the activities of others which play important role in enabling effective collaboration among distributed work group members that are involved in the system[13]. With all the multiple conceptualization of awareness, it can become difficult to pinpoint the key components of the concept. This dilemma is resolved by the situational awareness theory.

Situational awareness or situation awareness (SA) is described as the perception of environmental elements and events with respect to time or space, the comprehension of their meaning, and the projection of their future status. The theory was originally developed to ensure the safety of fighter pilots during the first world war. In this period, it was found that it is important for pilots to be aware of all elements that constitute their environment, understand the danger posed or advantages offered by each of the element and predict how each of these elements can affect their safety and ultimately, the achievement of their objectives[58]. While rooted in safety, the theory has found much use in manufacturing and other complex environment where lack of awareness can pose danger to an individual and those in their immediate vicinity. The theory has also been found relevant especially as it relates to using available information and past experience to make decision about the acceptance or rejection of an idea or technology[59]. It is therefore relevant in the context of institutional

repositories as a grounded framework for lecturers to make informed decisions about the use of institutional repositories.

According to the proponent of the situational awareness theory, situation awareness is the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future. Embedded in this definition is the core components or levels of awareness all of which must be attained in order to achieve effective use of institutional repositories. These levels or components are perception, comprehension and projection. Perception is the basic level of awareness and projection is the highest level. However, this does not mean that the levels are hierarchical. That is, it is not totally compulsory to attain each level in any particular order. Careful examinations of these constructs will reveal that they have all been examined in one form or the other by scholars in relation to the acceptance of library information systems such as institutional repositories.

Situational awareness starts with perception of the status, attributes, and dynamics of a particular object, person, idea or technology. A pilot would perceive elements such as aircraft, mountains, or warning lights along with their relevant characteristics (e.g., color, size, speed, location tactical commander needs accurate data or location, type, number, capabilities, and dynamics of all enemy and friendly forces given area and their relationship to other point of reference. In the same vein, a lecturer has to know about the existence of institutional repositories and what it does. This level of awareness is often investigated by researchers especially in developing countries such as Nigeria.

Researcher examining awareness often ask lecturers and other respondents to indicate whether they have heard about institutions repositories to which the respondents are

expected to answer 'yes' or 'no'[60]. In some cases, respondents are also asked to indicate the source of awareness of institutional repository. While simply 'hearing' about IR may be inadequate, the source of knowledge about them matters. Perception is shaped by available information, the credibility of the source of information and the manner or channel through which the information is provided. It has been observed providing relevant information about the institutional repository and all related issues surrounding it goes a long way in creating positive perceptions in the minds of key stakeholders and the beginning of the journey towards its long-term sustainability.

Researchers have shown that the adoption of institutional repositories by lecturers depends largely on how well they understand all the issues surrounding it. However, the perception of institutional repository is dependent on how well the managers are able to promote it and make its usefulness and relevance apparent to the stakeholders[61]. Lecturers often have some inaccurate or incomplete information regarding institutional repository from other sources which may lead to their forming negative perception about institutional repositories.

Consequently, focusing on simply informing lecturers about the existence of institutional repository overlooks the extent of advocacy that must be done to ensure the acceptance and use of institutional repositories. These include, training, sensitization, mediated archiving and other technical supports that should be offered by repositories managers to ensure effective use of institutional repositories. When scholar limit their investigation to whether scholars are aware of the existence of institutional repositories may prevent the collection of data showing other aspect of awareness.

Previous studies, even in Europe have reported low level of institutional repository use among lecturers due to the inability of repository managers to properly explain related issues such as protection of intellectual property rights[62]. In other instance, it was found that lecturers have already formed the opinion that only low-quality information resources are deposited into institutional repositories. To these categories of lecturers, only those researches that could not pass the peer review process are deposited in repositories.

This perception has implication on the use of institutional repositories, both in term of self-archiving and using the repository as a source of research information. The lecturers who perceive that only substandard scholarly materials are deposited in repositories would not want to be associated with the repository because they will believe it would not contribute to their career development. In the same vein, they would not be disposed to retrieving information resources from the repository because they would consider the resources substandard and therefore like to be of no use to them[63]. Creating awareness for institution repositories with this background information in mind would lead to the design and implementation of the right communication strategies that would clarify all knotty issues and ensure positive perception of institutional among stakeholders such as lecturers

It is pointed out by a scholar that the acceptance and use of institutional repository is a function of the ability of the managers to create widespread awareness about its existence, their purpose and role of all stakeholders in their success as well as to clear all possible misconceptions about the role of institutional repositories. Such effort should not be limited at informing but should also be extended to educating and orientating the lecturers about the principles and philosophy of institutional

repositories. This is expected to arouse the interest of the stakeholders as the mere awareness of its existence is not enough to stimulate widespread use. As mentioned earlier, the purpose of creating awareness is to co-opt the lecturers into becoming partners in the development of the institutional repository by willingly contributing and retrieving articles contributed by others. To achieve this, the positive perception formed should lead to comprehension.

Comprehension of the situation is based on a synthesis of all the information that influenced the perception. Comprehension builds on the awareness of all the issue relating to the institutional repository and extends to the understanding of the importance of the objectives of the repository in light of pertinent goals. Comprehension in the context of institutional repository means that the users is aware of its existence, contents, guiding policies and technical operations such as how to deposit research and how to retrieve information from the repositories.[64] Comprehension also extend to understanding that institutional repositories are information systems just like scholarly databases that they are already familiar with. Comprehension as a construct of awareness was described as the ability to make sense of an idea or technology. It therefore means that lecturers should be able to understand all issues surrounding the existence of institutional repositories. This theme has been explored by several studies on the awareness of institutional repositories by lecturers.

A study that examined how the awareness of institutional repository influence the development and use of institutional repository in Public universities in south-west Nigeria included in its metric of awareness statements that test the perception and projection regarding institutional repositories. In addition to answering questions

about whether they have heard about institutional repositories, respondents were also asked their opinion about whether IR development can enhance access to Nigeria research work both locally and globally and if they would agree to submit their research to the IR[64]. While this study is richer than many others, it neglects the aspect of comprehension. There are no questions on whether the respondents understand the basic operation of the IR. The implication of this is that the study is unable to determine the level of proficiency of the users in using the repository so it could not identify whether there is a problem of comprehension or not. Inability to detect a problem means that no solution can be proffered. It is therefore possible that the failure to investigate all aspects of awareness is responsible for low level of institutional repository use despite all the efforts made so far. Indeed, in one of the few studies that include metric relating to comprehension by asking the respondents to respond the statement; " I am aware of the processes of depositing my work into IR", it was found that majority of the respondents lacked this level of awareness. This also reflected in their level of use of institutional repository as majority of them were unable to deposit their research output in the repository without the assistance of librarians and other experts[52].

The significance of exploring comprehension as a component of awareness is highlighted in another study measuring the awareness, knowledge, and attitudes of Nigerian lecturers toward institutional repositories. It was discovered that the majority of librarians are either unaware of the objectives of their institution's repository or do not comprehend its tasks adequately. This suggests that certain instructors in Nigerian universities have limited awareness of IRs and are unfamiliar with the benefits and policies of its implementation in universities. Furthermore, some professors are familiar with the goals of international relations, but have limited knowledge of it.

Even at institutions with comprehensive IR programmes, such as Covenant University, only nine percent of respondents reported being very educated about the goals of IR at their institution. In light of the fact that the universities examined are those that have already embraced IR, the researchers are concerned about this finding. If these institutions that have adopted IR have inadequate awareness and understanding of international relations, the scholar wondered what will become of those institutions yet to implement an IR[64]. Comprehension, which is the clear understanding of the full essence of the IR derived from the knowledge of its existence and objective is closely linked to projection.

Projection as a part of situational awareness refers to the ability of an individual or group to predict the future outcome of an activity. In the context of this study projection speaks to the ability of lecturer to recognize the benefit or dangers of using the IR. Researchers in the field of library and information science are not oblivious of the importance of projection. However, this concept is often measured under various factors such as attitude and perception. In projection, it is important to find out the understanding of lecturers regarding the merits and demerits of using information repository. Researchers in the south-west of Nigeria survey the understanding of respondents regarding the benefits of using institutional repositories such a wider visibility for scholarly works; Wider communication of research outcome; increased personal prestige in one's field; increase institutional prestige; protection of research from plagiarism; increase the citation impact; reduce exploitations by commercial publishers; providing free access to electronic theses, dissertations and scholarly articles for researcher, as well as faster and wider dissemination of knowledge. The study found that majority of the lecturers agree with these benefits[65].

As pointed out in a study about situational awareness, it must be allowed that even when two people were given the same information, they are likely to process the information differently which would result in different behavioural outcomes. Also the levels or dimensions of awareness which began from perception to comprehension and culminated in projection is like an input and output process. The input starts at the basic level where the user is introduced to the concept of institutional repository. The projection greatly depends on the completeness, accuracy and clarity of the information provided for the individual at the initial stage. It also depends on the personality of the individual, previous experience, environmental factor and others which influence perception. As a result, the projection of some lecturers, after comprehending the inner workings of the IR may tend towards negative.

There have been some report of lecturers refusing to use institutional repositories because they believe it exposes their research to copyright abuses, reduces the visibility and put them among inexperienced researchers[66]. This outcome has been blamed on gap in communication on the part of institutional repository managers who are so assured that, once they built an institutional repository and populate it with quality resources, information users such as lecturers would 'rush' to make use of the resources.[65] The result is that the IR managers builds repositories, proudly announce to the lecturers that the repository is up and running through one-day 'sensitization' or 'awareness' programmes and sit back expecting the lecturers to come and make use of the repositories. The exploration of awareness in a holistic manner is therefore important in order for librarians develop effective strategies for boosting the use of institutional repositories.

In essence, awareness is a multilevel construct which ranges from perception relating to being aware of the existence and broad objectives of the institutional repositories. This is the foundation which determines the comprehension of the whole essence of the institutional repository such as the policies guiding self-archiving, the process of self-archiving and information retrieval, the basic problems that can be encounter and other related matters. The third level is projection. At this level, lecturers are able to combine their perception and comprehension to make projection about the benefits and drawbacks of using the institutional repository, both for self-archiving and for information retrieval. The outcome of these level is expected to influence the decision to use institutional repositories. However, when the decisions are made to use the repository, lecturers have to come face to face with the realities of use information technology represented by the institutional repository software. At this stage, the lecturer is aware of the institutional repository and has learnt the process of depositing research in it. The ability and the decision to use the repository will also be affected by technology acceptance factors such as anchor factors.

2.1.3 Anchor Factors in the Use of Institutional Repository

The institutional repository, despite all its attributes, is still basically a computer software designed to achieve accomplished tasks. To many lecturers, the IR is a new technology which they are been asked to use to carry out tasks they had been accomplishing through other means. Irrespective of the advertised benefits, it is left to the individual lecturers to make a decision about whether to use the institutional repository or not. The decision is made based on the presence or absence of certain factors. Some of the factors that have been proposed to measure technology acceptance or rejection include anchor factors.

Anchor factors are variables adopted from Venkatesh and Bala's Technology Acceptance Model 3 (TAM 3). The TAM 3 itself was derived from the original Technology Acceptance Model. The TAM was introduced for the first time in 1989. It is a model that predicts how new technology will be adopted and used. The model suggests that two main factors or perceptions; perceived usefulness and perceived ease of use; are the main determinants of technology acceptance. What this means is that users will accept a new technology if they think that it is useful in a way that enhance their ability to accomplish certain tasks and if they think that it will not be too stressful to use it for the purpose it is advertised[67]. The model was widely received and adopted in various studies which contributed to the validation of its two constructs. It was found that perceived ease of use is the most significant predictor of technology acceptance. However, critics observed that there are certain factors that determine the perception of ease of use and usefulness of a new technology. This led to calls to modify the original TAM.

TAM was enlarged, resulting in TAM 2. In TAM 2, the developer of the original model, Davis worked with another theorist Venkatesh to develop moderators for perceived usefulness. Subjective norm, image, work relevance, output quality, and result demonstrability are the five general factors of perceived usefulness identified. In addition, two moderators were proposed: experience and voluntariness. However, this revision did not do enough to explain factors that determine perceived ease of use which has become accepted as a real predictor of technology acceptance. This is what led to the development of TAM 3[68].

TAM 3 was created when Venkatesh, who had helped work on the first TAM, combined with another theorist to expand TAM 2 to include both the drivers of

perceived ease of use and usefulness. The new model identifies the key determinants of perceived ease of use such as anchor factors which is made up of computer self-efficacy, perceptions of external control, computer anxiety, and computer playfulness. The other factors affecting the ease of use is adjustment factors. This comprises, perceived enjoyment and objective usability. In this study, the determinant of perceived ease of use in TAM 3 forms the basis of this study. This was done because, especially in developing countries, perceived ease of use has been shown to be a stronger predictor of intention to adopt and actual use of any new technology[69].

The anchor factors represent the perception of information users about digital technology and how they are used. Anchor factors are based on three general constructs: control, intrinsic motivation, and emotion. Perceptions of internal control (computer self-efficacy) and perceptions of external control are the two types of control (facilitating conditions). Computer playfulness is an example of intrinsic motivation, but computer anxiety is an example of emotion. These constructs are the determinant of perceived ease of use which is a predictor of technology acceptance. It is assumed the presence or absence of these factors would therefore determine the frequency and purpose of institutional repositories use among lecturers. As a result, computer self-efficacy, computer playfulness, and computer anxiety are considered.

Computer self-efficacy has its origin in the social cognitive theory (SCT). It refers to lecturers' assessments of their effectiveness or ability to make use of institutional repository for various tasks such as depositing their research work or retrieving information for various purposes such as teaching and research. Computer self-efficacy is related not to the computer usage skills of an individual lecturer but rather to how he or she utilizes these skills to access institutional repositories. In this context,

self-efficacy is a lecturer's personal belief that he or she possesses the aptitude and skills to succeed when engaging in an institutional repository-related task[70]. It is a sign of internal control that a potential user has over his or her decision to use a new technology.

Researchers stated that computer self-efficacy indicates users' assessment of their own ability to use computers that affects their perception of the ease of using technology and making decisions to accept technology[71]. Those who have little confidence in their ability to use computers may show a weak performance in performing computer-based tasks including the use of institutional repositories. On the other hand, those with high computer self-efficacy would be much more inclined to use the computer for various tasks including using it to deposit their research and retrieve information from institutional repositories. It must be stated that the concept of a computer in the context of this study refers to the use of all types of computers; desktops, laptops, and other computer-related devices such as tablets and Personal Digital Assistants (PDAs).

In the rapidly changing world of technology, computer self-efficacy does not simply mean the perceived ability to use the computer, it extends to self-evaluation of one's ability to all digital technology. In this sense computer self-efficacy was also described as an individual's perceptions of his or her ability to use institutional repositories, whether it mobile based, laptop or desktop computer. to accomplish particular tasks (e.g., self-archiving or information retrieval). With the proliferation of mobile device and emergence of many applications which are mobile phone based, some scholars have also introduced the concept of Mobile self-efficacy. This is defined as the ability to use mobile-based applications for various task such as e-learning, web-surfing and digital communication among others. Computer

manufacturers are adding features that make it easier to use computers but the level of proficiency that a lecturer attains in the use of computers depends on their level of computer self-efficacy[72]. Computer self-efficacy is a state of mind which is formed through exposure to various factors

Individual characters can also demonstrate self-efficacy when using technology. Those with low self-esteem or self-efficacy are inclined to avoid using new technologies. Researchers have found lecturers who can identify, have confidence in their abilities to: organise data using a computer, organise and maintain files, use software packages, and define core computer operations are more likely to use computers based systems such as institutional repositories. Lack of computer self-efficacy on the other hand is a barrier to using institutional repositories, particularly its electronic information resources, which impacts most users' ability to find relevant resources for their research and other academic activities. Lecturers' competence and competency in using Information and Communication Technology (ICT), as well as, to a greater extent, establishing computer self-efficacy, are critical to properly utilising the institutional repositories[73].

Computer self-efficacy, in particular, is a significant indication of performance that serves, regardless of skill level. Most of the time, computer self-efficacy is not as a result of lack of computer skills but the perception that an individual possess or does not possess the aptitude to acquire the skills required to make good use of computer based systems. This distinction is important because, lecturers with low computer skills but with high self-efficacy may have the courage to continue using the institutional repository because of the belief that he or she is capable of doing so, thereby improving personal skills through practise. This notion is accompanied with a desire to use the computer.

Accordingly, computer self-efficacy entails a generative competence, in which a person must organise cognitive, social, and behavioural sub-skills into integrated action plans. Lecturers with a high level of computer self-efficacy are more likely to be high frequent users of institutional repositories while those with low computer self-efficacy tends to shy away from using institutional repositories. Whenever they have to use computer-based systems such as institutional repositories, they may perceive it as a daunting task. Lecturers that have a high level of computer self-efficacy are more inclined than others to try out new technologies, applications, or databases. As a result, students with high computer self-efficacy are more likely to use electronic information resources than students with low computer self-efficacy, as the latter may lack confidence or be hesitant to use computer-based resources[74]. As outlined in the social cognitive theory, there are four elements that influence individual perception of efficacy. These include mastery experience; vicarious experience; verbal persuasion, and emotional state.

Mastery experience refers to the nature of experience obtained through previous interaction with computers. Researchers have observed that in particular, personal characteristics and computer experience can lead to the enhancement of computer self-efficacy that, in turn, reduces computer anxiety in lecturers. Those lecturers who have been working with computers may have a higher level of belief that the use of computers in the information searching and retrieval process is easy. On the other hand, those lecturers who are not exposed to computers may be afraid that they may not be able to operate the computer with enough skills to obtain the information they need from institutional repositories[75]. In a more related context, some lecturers have already familiar with the use of self-archiving tools such as arXiv, academia.edu and ResearchGate among others.in addition, lecturers have also been using scholarly

databases such as google scholar, science direct, EbscoHost etc[76]. for information retrieval The experienced gathered through long term use of these information systems therefore confers some sense of mastery which improves the confidence of lecturers on their ability to use the institutional repository. This experience can also be negative, in which, the lecturers having tried and failed to use these databases, form the perception that they would not be able to master any other information system[77].

The second most powerful influence of self-efficacy beliefs is "vicarious experience," which is gained by observing others perform activities successfully or unsuccessfully. Vicarious experience means the opinion formed or attitude developed through seeing others perform some activities relating to the use of computers or online scholarly databases[78]. The way vicarious experience works is that, when lecturers observed their colleagues or other members of their institutions using the institutional repository, they would think to themselves that if others can do it, they should be able to improve their performance by learning from what they have observed[79]. On the other hand, if what they observed is others being frustrated while making use of the repository, they may develop negative computer self-efficacy. In addition to personal experience with computers and vicarious experience which occurred through observing others using computers, lecturers can also develop computer self-efficacy through verbal persuasions.

The next source of influence on computer self-efficacy is verbal persuasion (or social persuasion), which refers to acts in which individuals are lead, by suggestion, to believe that they can perform specified tasks well. People are persuaded, through suggestion, to believe that they can successfully manage what has previously overwhelmed them. Coaching and providing performance evaluation comments are major tactics of social persuasion. Librarians, professors, and peers can support and

motivate lecturer to gain confidence in their ability to utilise institutional repositories. This verbal persuasion is useful, though, for those with some computing abilities. Those with no digital abilities whatsoever may require training and awareness programmes. Negative physiological responses that may develop as a result of stressor anxiety are a further factor influencing computer self-efficacy.

An individual's emotional, bodily, and psychological condition might influence how they see their personal talents in a given situation. For instance, those who struggle with depression or anxiety may find it more difficult to maintain a healthy level of well-being. Boosting one's self-efficacy is considerably simpler when one is well and feeling good. Scholars assert that it is not the degree of emotional and physical responses that matters, but rather how they are seen and interpreted. People with a high feeling of effectiveness are more likely to consider their emotional stimulation as a refreshing performance enhancer, whereas those plagued by self-doubt view their stimulation as a debilitating factor. Individuals can increase their sense of self-efficacy by learning how to manage anxiety and improve their mood when confronted with stressful situations. Aside from computer self-efficacy, another factor that may influence the use of institutional repository is the level of computer anxiety among lecturers

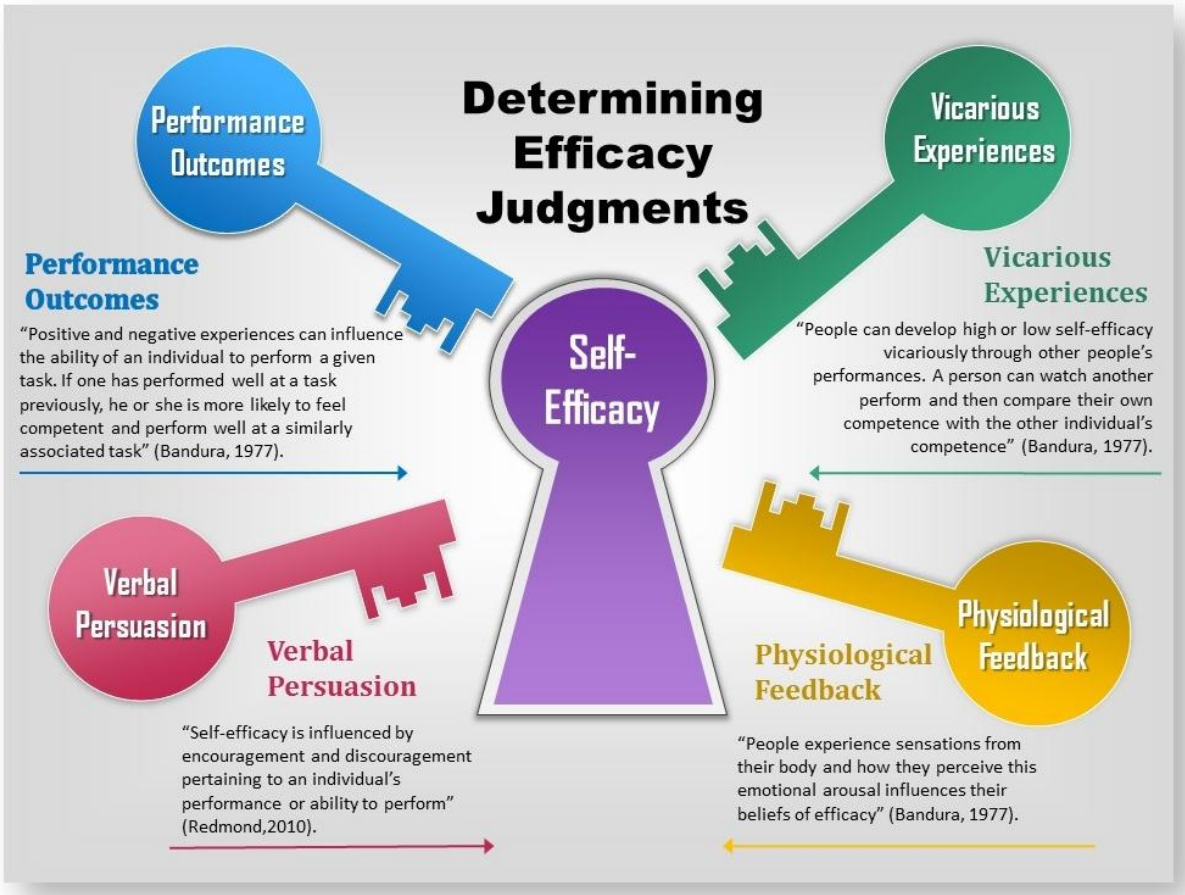

Figure 2.2: Computer Self-Efficacy (Source: The Pennsylvania State University)

Computer anxiety is defined as a situation whereby an individual demonstrates a state of heightened tension or a feeling of nervousness caused by the use of computers. Computer anxiety usually manifest in behaviour such as the avoidance of computers and the general locations where computers are placed, being overtly careful when around computers; making negative statements about computers; and attempts to avoid the use of computers except when absolutely necessary[80]. Computer anxiety is a term referring to an emotional fear of adverse outcomes such as being embarrassed or damaging files or equipment. Computer anxiety is also describe as the uneasy feeling experienced when using a computer. The worried individual may have negative

thoughts, sweaty hands, and an elevated heart rate, or they may wish to avoid using a computer or computer-based technology at all[81].

Recent study indicates that computer anxiety is more than a state anxiety that develops exclusively in the presence (real or symbolic) of a computer, and is therefore primarily a context-dependent, transient state. This means that computer anxiety is a specific type of anxiety triggered only by the use of, or thought of using a computer to achieve certain tasks such as for the purpose of accessing institutional repositories. It therefore means that this anxiety does not affect any other cognitive aspect of an individual. Therefore, even lecturers who are the best in their fields or who have published a lot of research may still be prone to computer anxiety. This has made researchers to suggest that computer anxiety may be a personality trait for certain individuals including lecturers[82]. Understanding computer anxiety from this perspective may prepare institutional repository managers and information professional for dealing with lecturers who may show reluctance to use the repository.

Anxious individuals are more likely to experience computer anxiety. This distinction is significant because it influences the type and scope of actions and assistance that may be required to encourage lecturers to make use of institutional repositories. Specialized instruction addressing the specific complexities of computer systems/applications is likely to alleviate a brief, context-dependent computer phobia. But if computer anxiety is influenced directly by higher levels of general anxiety, it is likely to be more resistant to particular computer training and ubiquitous in individuals' interactions with learning in general.

Computer anxiety has been viewed as a multidimensional entity with the three key dimensions being psychological, operational, and societal[83]. The psychological

dimension consists of computer-related attitudes, personality types, avoidance, and self-perceptions. Operational dimension is typically influenced by computer courses, teachers, the type of computers, the quantity of prior computer expertise, and the possession of a personal computer. The sociological dimension is associated with age, gender, nationality, socioeconomic status, and field of study variables. This implication of these dimensions is that computer anxiety can be caused by the usability of the software used for the repository or its user interface configuration, the type of training provided during the early implementation of the repository, and previous exposure to the use of computers and related devices.

Library and information professional must be strategic in the development and training of lecturer of lecturers in the use of institutional repositories. When the repository is too cumbersome or complex or when the instructor fails to develop an interesting, easy-to-follow training material, the result may be counterproductive as lecturers become even more disoriented and discouraged about using the repository. This may arise as a result of heightened perception that the new system is too complex and not easy to use. In this scenario, those lecturers with computer anxiety would become even more scared to consider using the new system.

Computer anxiety has a significant negative impact on computer-related activities, such as computing skills, intention to use computers, attitudes toward computers, and perceived usefulness of computers[84]. These results demonstrated that computer anxiety exacerbates computer difficulties and poses a barrier to a person's interaction with computers. Lecturers with a positive attitude toward computers will recognise errors as obstacles to be overcome, enjoy acquiring new skills, and have a positive attitude about computers. It is recognised that a lack of computer knowledge and

skills may have a significant detrimental impact on lecturers' ability to use the institutional repository. Therefore, librarians and information professionals must find a long-term solution to the computer anxiety of lecturers and other members of the academic communities who are expected to make use of the institutional repository. It is believed that lecturers will be able to acquire necessary skills and utilise institutional repositories without difficulty if computer anxiety, is alleviated through strategic efforts.

The concept of computer playfulness refers to a multifaceted concept that encompasses an individual's pleasure, psychological stimulation, and interests in using an information system. Computer playfulness is a term that relates to an individual's proclivity for spontaneous interaction with a computer. It might be regarded a state of mind or an individual characteristic. A state of mind is a transient cognitive experience that an individual feels. A trait is a property of an individual that is often stable but also gradually evolves through time.

Scholars believe that computer playfulness is a system-specific attribute that might fluctuate over time as expertise with a particular technology accumulates. While an individual may be called a computer playful in general, his or her level of playfulness toward a particular technology may vary. Also, the level of playfulness may vary along with the changes in the interface which makes it either easier or more complex to use.

Computer playfulness is described as the pleasure an individual feels objectively when committing a particular behavior or carrying out a particular activity[85]. The term computer playfulness is also used to measure the degree to which the process of using a particular information system is judged to be delightful in and of itself, independent

of any performance consequences associated with its use. In the context of information system use, computer playfulness measure how totally absorbed are information users in the use of an information system. That, apart from the information retrieved, they also derive pleasure from the process of interacting with the information system[86].

Perceived playfulness is defined as the way and manner an individual will behave when interacting with a particular kind of information technology. It is the extent to which an information user perceives that his or her attention is focused on the interaction with the information system; is curious during the information search and retrieval process; and finds the use of the information system enjoyable or interesting[87]. Playfulness is regarded as an inner belief or drive influenced by an individual's interactions with his or her surroundings. Perceived playfulness encapsulates the natural desire inherent in utilizing any new information system. From this anaylsis, it is easy to see the link between computer playfulness, computer self-efficacy and computer anxiety.

Scholars have reported a positive relationship between computer playfulness and computer self-efficacy while computer playfulness is negatively correlated to computer. This means that computer playfulness can help alleviate computer anxiety but someone with computer anxiety would find it difficult to become playful with computers. On the other hand individuals with computer self-efficacy are highly to be playful with computers It is evident that as attitudes towards use of technology increase, computer self- efficacy also increase and this cause a gradual decrease in computer anxiety. A recent study revealed that there was no significant relationship between the students' computer self-efficacy skills and their attitude towards e-learning platforms[88].

Individuals who are in a state of playfulness are believed to find the interaction with information systems intriguing, as they are engaged in the activity for pleasure and satisfaction rather than for extrinsic incentives. Additionally, playfulness could be considered facilitating factors that influence perceived usefulness and reported ease of use, the other three determinants being individual variations, system characteristics, and social influence[89].

Computer playfulness is an important construct for measuring the adoption and use of institutional repositories. This is because available literature suggests that higher playfulness on the part of potential users can lead to positive perception of involvement, positive mood, and satisfaction[43]. Therefore, lecturers with high level of computer playfulness are more likely to see interacting with information systems such as institutional repositories more positively than less playful lecturers and consequently will be more motivated to make use of the repository both for self archiving and information retrieval.

Computer playfulness is also associated with longer-term outcomes, such as learning which means that lecturers with computer playfulness can easily learn everything about the use of institutional repository as soon as it is introduced in their institutions. Lecturers who demonstrate computer playfulness are also more likely to demonstrate and acquire information management skills through exploratory behaviours[90]. Thus, these lecturers will be better placed to adapt to situations requiring these skills in the future. This perspective is consistent with past information systems literature. Some of the antecedent of computer playfulness that have been identified include spontaneity, creativity, playful, and unoriginal.

The Webster Dictionary of English language defined being spontaneous as the act of doing or saying something without external constraint; or acting based on natural instinct or personal tendency. Spontaneous lecturers adopt institutional repositories not out of fear or compulsion but out of curiosity and the need to experiment. Spontaneity is displayed by those who are likely to try out a new system just to see how it works. When some users initially interact with a computer system, they are frequently intimidated and agitated, resulting in a low level of playfulness. However, people with high level of playfulness are more likely to investigate and interact spontaneously with the system as they gain acquaintance with it.

Researchers have discovered a substantial association between computer experience and computer playfulness, with a correlation coefficient ranging from 0.37 to 0.51[91]. What this suggests is that information users who are spontaneous in the use of computer systems are more likely to be willing to explore any new information system and enjoy using it simply because they are able to use relevant features of the system and obtain the necessary information they seek. In line with this, researchers are of the opinion that information users' level of spontaneity is an essential deciding factor especially in the initial phases of technology adoption[92]. However, researchers have also pointed out that spontaneity can also have negative effects such as the use of computers for recreational activities instead of their intended work purposes[93]. Spontaneity represents a key construct of playfulness with close link to curiosity, inventiveness, and the need to play with ideas.

Playfulness is considered as an appropriate construct in conducting investigations into human computer interactions due to ability of computer software to be interactive, easy to use, personalization as well as the incorporation of multimedia such as animation, graphics and audio-visuals which make contents come alive[94]. From this

point of view, computer playfulness is defined with the emphasis on the word 'playfulness'. It connotes that individual would see computers as plaything to be explored with the results that they focus on the enjoyable parts of computer such as playing games and simply surfing the internet. An individual with this attitude towards computer is therefore unlikely to use computer for any serious task that may seem dull compared to recreational aspects of computer use. This has implication for the use of OPAC. The idea of creativity is found in many studies of playfulness.

A significant number of studies on creativity reveals that creation demands persistence and energy. Both of these traits would seem to be essential for an individual to achieve a high degree of technological acceptance and use. The paradox of the relationship of creativity to playfulness is that creativity is often shown in response to a need and those who score high on playfulness sometimes overlook needs. However, creativity is still regarded as a construct of computer playfulness as users who are playful with computers often become creative in using it. The most common understanding of creativity is that is used to solve complex issues or outline a solution to challenges encountered in the use of information systems[96].

It is indicated that creativity and the capacity to solve problems are the two most complicated aspects of human mental ability. In the age of the information economy, specifically, creativity has come to be considered as the most precious human asset. In addition, a creative person would explore various ways in which the information system could be used and not just limit themselves to the basic features. Wisdom seeks balance between the innovative and the traditional. Wise people have intellect as well as creativity, and while addressing difficulties, they may seek the ideal compromise between stability and change in the framework of their social culture. Thus, creativity and invention are highly significant parts of human performance.

Personal problem-solving talents, technical renewal and progress, and reform and innovation linked to social culture and structure are directly tied with human creativity and when they encounter any problem, they are more likely to find novel way to solve them[95]. But most importantly, the persistent need to find a new use for the system or to experiment with the feature would drive the individual back to the system over and over again. Creativity is very close to imaginative

Lecturers who are used to the simplified search engines such as Google and other colourful interfaces used by large scholarly database may find institutional interface unstimulating which may make it seem 'boring' to them. On the other hand, if they understand the difference between work and play or the difference between the recreational and scholarly environments, their computer playfulness may fuel their curiosity to explore the interface and 'discover' features that other 'less playful' users may be unaware of. This awareness and ability to use these helpful features may therefore influence the perceived ease of use which has been proven as a key determinant of institutional repository use[96].

According to a previous study, perceived playfulness has a strong relation with perceived ease of use and perceived usefulness[97]. In the context of institutional repository use, aspects of perceived playfulness include the degree to which an information seeker (a) feels that his or her attention is totally captured by the interaction with the repository interface; (b) is interested in staying on the interface for a long period just examining various features; and (c) finds the interaction inherently entertaining or interesting [98]. Examining the use of institutional repository from this perspective is highly important due to the fact that, like other information services provided by academic libraries, it is being compared to other information systems and sources available online.

Several studies have reported the preference for the worldwide web over library systems by various categories of users[99]. It is safe to assume that these preferred information sources have some things that made them attractive to the users at the expense of library websites and portals such as the institutional repositories. It is therefore logical to explore various themes that can yield useful information to guide software developers and those who build repository interfaces in developing systems capable of competing with any other information systems in term of appeal to information users[100].

2.2 Theoretical Review

A theoretical framework can be defined as a set of interrelated constructs, and propositions that present a systematic view of phenomenon by specifying relations among variables, explaining what has been done and what has been said on a topic. It is "a structure that guides research by relying on a formal theory, constructed by using an established, coherent explanation of certain phenomena and relationships. Within a research study, a theoretical framework gives a researcher structure and boundaries within which to work. It is the lens through which literature is reviewed and discussed[56] It helps create research questions, shape the research design, anticipate outcomes and design interventions [58].

2.2.1 The Situational Awareness Theory (SAT)

The situational awareness theory was propounded by M.R. Endsley in 1998[101]. The earliest and most widely used formal definition of SA describes it as "the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning and the projection of their status in the near future." Situational awareness theory therefore posits that awareness is in three stages;

perception, comprehension and projection. This implies that academic staff of universities should be considered to be aware of institutional repositories when they know about its existence and its objectives (perception), understand its functioning as well as rules and protocol that governs its operations (comprehension), and they are able to identify specific benefits to be gained from using institutional repositories (projection).

The theory posits that individuals need to gather enough information from various sources and properly process such information in order to accurate decisions. The theory is made for dynamic environments in which the parameters to be considered is not static[102]. This definition considers three levels of situation awareness: perception (level 1), comprehension (level 2) and projection (level 3), with the success of the higher depending on the success of the lower levels. In turn, projections, expectations and understanding of the situation have been demonstrated to influence perception and comprehension and as such all levels are interconnected[103].

A number of techniques have been developed for measuring situation awareness, one of which is the Situational Awareness Rating Technique (SART). SART is based on a person's subjective opinion. More specifically, an individual situation awareness is rated on three 7-point Likert scales, measuring the degree to which that person perceives (i) the demand on attentional resources (D), (ii) the availability of attentional resources (A), and (iii) the understanding of the situation he or she is confronted with (U). The demand D depends on factors such as the current situation's stability, complexity or variability. The availability of attentional resources A is affected by the person's degree of alertness, concentration, and spare mental capacity. Understanding of the situation U is influenced by the quantity and quality of the information available, and the familiarity with the situation[104].

Furthermore, the theory posits that situational awareness come from information garnered from various sources. The sources of SAT can vary considerably between individuals, and even from time to time for the same individual. It also warns that awareness creation efforts alone not enough to ensure widespread awareness. There is no awareness of situational information until the individual who needs the information to support their decisions has acquired it. Thus, the fact that certain information is on a report or display somewhere or possessed by a team mate is not sufficient; it must be acquired and understood by the decision maker before actual SA exists

In the context of this study, perception has to do with proper knowledge of the existence of institutional repositories by lecturers. This level of awareness is created through sharing information about the existence of the repository through fliers, awareness campaigns and using other institutional communication channels. Comprehension has to do with the ability to interact with the IR, understanding of its contents and various rules that guided self-archiving. Projection is the understanding of the benefits that can be derived in future from the use of the IR for self-archiving. Both of these levels are achieved through activities such as workshops, seminars, and other hands on training programmes that are designed to equip the lecturers with the skills and knowledge necessary for effective use of institutional repositories.

The theory is relevant to this current study because it allows a holistic examination of the level of awareness of lecturers regarding institutional repository. This is shown in the position of the theory that making information available is not enough, enough interventions must be put in place to ensure that lecturers who may not be at the same level of computer skills and/or positive attitude to the use of repository are all brought on board to ensure a wider acceptance and use of institutional repositories. There have

been criticisms of the situational awareness theory that it is simply a buzzword created by scholars. However several studies have validated the theory and applied it in several studies which have gone beyond the aviation industry where it was first applied to other areas such as manufacturing, artificial intelligence and digital libraries among others[105, 106].

2.2.2 Technology Acceptance Model 3 (TAM3)

The Technology Acceptance Model 3 (TAM 3) was propounded by Venkatesh and Bala in the year 2008. It was the second modification of the original TAM proposed by Davis in 1989. The model was an adaptation of Theory of Reasonable Action and it is specifically developed for modeling users' adoption of information systems or technologies. The original TAM model incorporates and validates two distinct constructs: perceived usefulness (PU) and perceived ease of use (PEU). Perceived Usefulness is defined as the subjective likelihood that a particular system will enhance the potential user's information retrieval activity, whereas Perceived Ease of Use is defined as the degree to which the potential user expects the target system, in this case, the institutional repository to be simple to use[107]. Other factors, referred to in TAM as external variables, can influence an individual's belief in a system.

Both perceived ease of use and perceived usefulness have been validated by several studies as predictors of acceptance and use of technology. However, scholars observed that there are certain factors that determine the perceived usefulness and perceived ease of use. This means that there was a need for the modification of the model. TAM was later expanded by Venkatesh and Davis, 2000 to create the TAM 2. This first modification added factors such as subjective norm, image, job relevance, output quality and result demonstrability proposed as determinants of perceived

usefulness. It also added two moderators: experience and voluntariness. However, this first modification did not cater for precursors to perceived ease of use.

In order to outline determinant factors for perceived ease of use, the TAM 2 was later expanded by Venkatesh and Bala in 2008 which resulted in TAM 3. The TAM3 added external variables such as anchor and adjustment factors to the original TAM. These represent external variables that affect perceived ease of use. The anchor factors that are believed to influence users' perception of ease of use include: self-efficacy perceptions of external control, computer anxiety, and computer playfulness. Each one of these factors have been found to influence perceived ease of use. Self-efficacy with computers, for instance, is regarded a necessary requirement for the operation of any system or technology[118]

Anchor factors are general beliefs about technologies and their usage, which are based on three general constructs: control, intrinsic motivation and emotion. Control is divided into perception of internal control (computer self-efficacy) and perception of external control (facilitating conditions). Intrinsic motivation is computer playfulness, while emotion is conceptualized as computer anxiety. However, the factors that relate solely to the users are computer self-efficacy, computer playfulness and computer anxiety. Therefore, these three anchor factors will be considered in this study. Therefore, this study was anchored by the determinants of perceived ease of use as proposed outlined in the TAM 3.

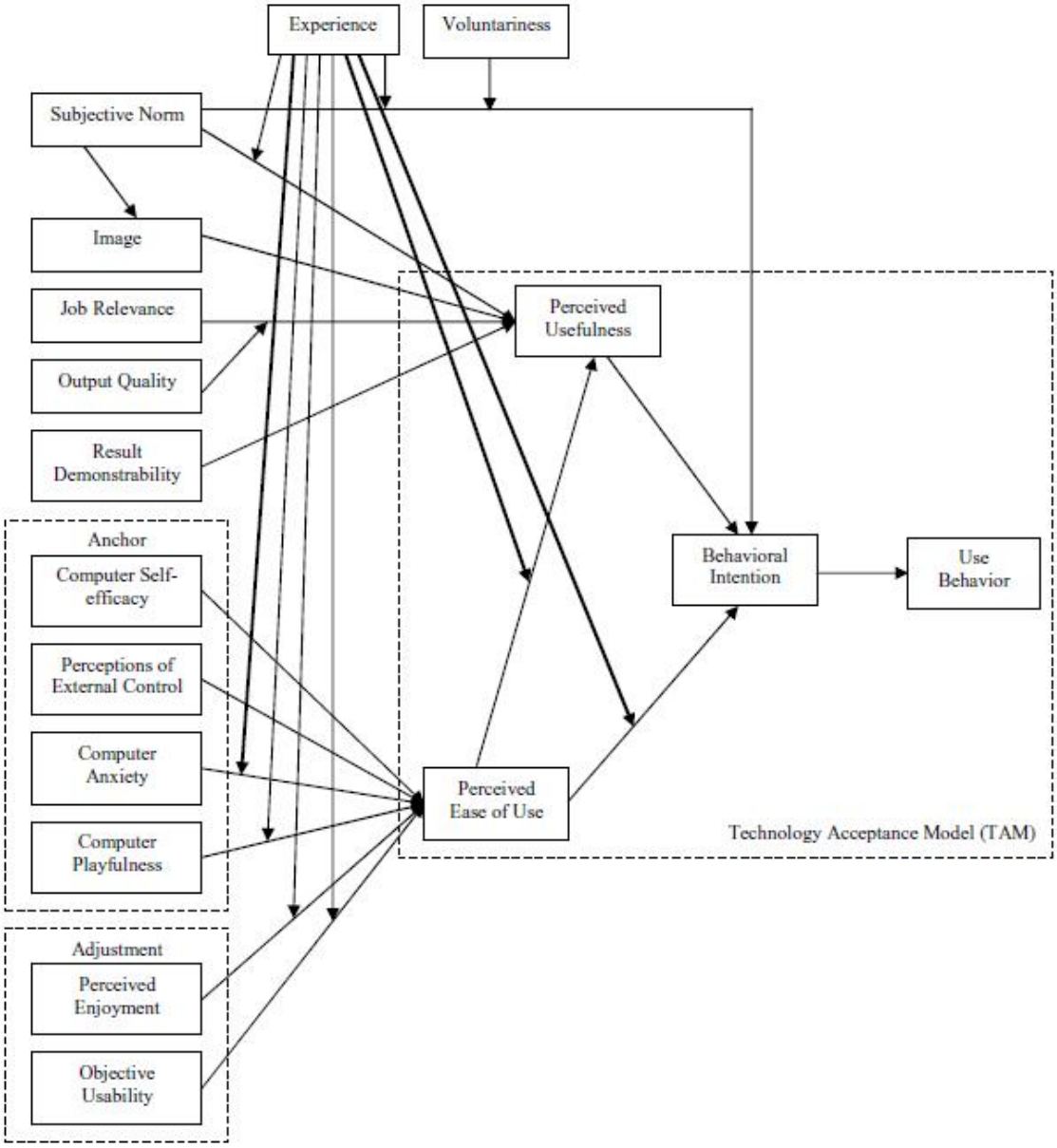

Figure 2.3: Technology Acceptance Model 3 (TAM3) (Source: Venkatesh and Bala, 2008)

2.3 Review of Empirical Studies

2.3.1 Awareness and the Use of Institutional Repositories

Awareness is one of the earliest factors to be considered in the use of institutional repository. As an innovation, institutional repositories are often virtually unknown to many, including lecturers, which means that they are not likely to consider it as a

source of information or a tool they can use for the dissemination of their own research outputs. As a result, there are quite a body of literature on the subject of awareness of institutional repositories and how it influences the use of institutional repositories. The available literature on the awareness of institutional repositories also shows the multidimensional nature of the concept of awareness.

A study conducted in Texas to assess the degree of awareness on institutional repository at Texas A&M University (TAMU) revealed that the level of awareness was quite low. The study was a survey research and the population consist of lecturers in the university. The study sample was 295 lecturers selected using stratified random sampling method. The research instrument was a structured questionnaire. The result showed that only 27 percent of the respondents surveyed from 10 faculties of the institution were aware of the existence of the institutional repository, and only 7% had submitted, at least, a published research to the repository[108]. This finding, coming from an institution in America, a country with the highest number of institutional repositories in the world is surprising and one may think it is an exception to the rule. However, another study conducted three years later also showed that the awareness was still an issue which affect the use institutional repositories by lecturers.

A group of researchers from Canada and the United States of America conducted a study to evaluate the challenges facing institutional repositories development in American universities. The study adopted a mixed research method. A survey instrument (questionnaire) was used to collected data. This was also supplemented by qualitative data from various experts in information system development. The population of the study included all librarians involved in the management of institutional repositories in over one thousand academic libraries in United States of America. However, only sixty-four institutional repository managers responded to the

questionnaire. Among the key findings of the study was that majority of the lecturers in the institutions were unaware of the institutional repository in their institutions (Mean = 4.95) and as a result, many of the lecturers did not submit their research to the repositories and few of them use the available resources in the institutional repository (Mean = 4.33)[109].

The seeming lack of awareness and its influence on the use of institutional repositories in developed nations can however be excused on the availability of several databases and ability of the institutions to subscribe to a large number of journals in each field. This is not so in Africa and other developing countries. It would be expected that information users in countries such as Nigeria would make large scale use of institutional repositories. However, available literature also suggests that awareness is a significant factor in the use of institutional repositories in these countries as well.

In India, researchers examined the level of awareness of institutional repositories and how it affected the use of institutional repository in academic libraries. The study was a quantitative survey research. The researcher adopted an online questionnaire to collected empirical data relating to the study. The study aimed to determine whether simply informing users or organizing workshop to explain the use of institutional repositories would have more impact on the use of institutional repositories. Initial survey showed that about 33% of respondents use institutional repositories. Furthermore, it was found that higher level of awareness such as comprehension and projection achieved through participation in workshops/seminars have an impact on the use of institutional repositories ($F = 13.473$, $p\ 0.05$)[110]. This finding is highly instructive as it specifically supports the theory of awareness. When users attained the highest level of awareness, they would make use of the institutional repository

frequently and for many purposes. The global situation in the use of institutional repositories also applies to the African continent.

Researchers in Kenya who observed that content recruitment is an important aspect of institutional repositories development conducted a study to ascertain how awareness affect the readiness of lecturers to submit their research outputs to institutional repositories. The study also examined the rate of information retrieval from institutional repositories by lecturers and other users. The researchers employed a qualitative research strategy. The population of the study included 20 librarians who were responsible for overseeing IR and were therefore informed about it. Interview was used as the main instrument for data collection.

The findings of the study indicated that majority of the respondents (53%), reported that there is low level of user awareness about institutional repositories in their institutions which means that majority of the lecturers were simply informed about the existence of the institutional repository (perception) without in depth training on the use of institutional repositories and continuous advocacy on the use of institutional repositories to create higher level of awareness (i.e; comprehension and projection). This low level of awareness was reported to affect the use of institutional repository as 63%, of the librarians interviewed reported that content recruitment for the institutional repository is a big challenge as they always find it difficult to convince researchers to deposit their research in the repositories[111]. Another study conducted a few years later in Kenya however indicated an improvement.

Scholars investigated the awareness and attitude of lecturers in selected Kenyan universities toward using the institutional repository for publishing academic research. The study adopted a survey research method which covered three government funded

universities in Kenya. The study population included lecturers in the selected universities. The study sample included 341 lecturers from the selected universities. The primary data collection instrument was a questionnaire. The study found that 59% of the lecturers are 'fully aware' of the institutional repository which means that they have attained the three levels of perception, comprehension, and projection. This full awareness was achieved through interaction with Librarians (27%), Colleagues (25%), Workshop and seminars (24%) and Internet tutorials (24%). This awareness influenced the use of institutional repository as it was reported that 69% of the lecturers prefer to use institutional repositories while 85% of them use the repository weekly to meet various information needs.

Findings showed that the lecturers use the institutional repositories for purposes that include; searching and accessing research articles (74%), formulating research problem (68%), developing research proposal (67%), conducting literature review (62%), designing research (61%), disseminating research findings (60%), publishing book chapters (55%), publishing research findings (47%), self-archiving (36%)[112]. This finding shows that adopting an integrated approach to awareness creation for institutional repositories is the key to high level of use among lecturers. The contrasting findings, even within the same country has prompted many scholars to conduct country and institutional specific studies to evaluate the impact of awareness on use of institutional repositories.

The role of awareness was emphasized in similar study conducted among postgraduate students in Kenya. The study which adopted a survey research method and a combination of structured questionnaire and an interview to gather data from a sample of 105 Masters and 58 Doctorate students and some library staff reported that 54% of the respondents got to know about the existence of the IR during presentation

by an IR librarian in an information literacy session and 34% got to know about the existence of IR through the library website upfront before the IL session. On the use of the institutional repository, the study found that 12% of the Masters students accessed the IR weekly compared to 64% of the PhD students who accessed the IR on a weekly basis.

The study however found that 64% of the PhD students found the content very relevant and 22% of Masters Students agreed that the contents are relevant to their study. This is considered encouraging for the Institutional repository developers more so as 70% of the respondents reported that they use the repositories mainly to retrieve research information. However, the repositories would have enjoyed more patronage if not for the perception of the users. 60% of the postgraduate students reported that the IR is not easy to access while 62% also reported that internet access is a major challenge to the use of IR in the university[113].

Another study related to presented study focused on the awareness and use of institutional repositories by the scholars in Maharashtra, India. A total of 1021 questionnaires were distributed, and the total response of 584 responses was used for analysis purpose. Data analysed regarding awareness of the institutional repository showed that 64.1 percent of the respondents agreed that they become aware of the institutional repository through library staff. The institutional website was also a significant source for creating awareness about the institutional repositories as indicated by 59 percent of the respondents.

The study also indicated that, apart from depositing their researches in the institutional repository, the scholars also used it as a source for research information. It was found that scholars' preference for information vary according to their disciplines. Respondents from Arts and Humanities prefer to use journal articles

(mean =4.23) followed by research papers (mean =4.04), theses & dissertations (mean =3.68) and conference proceedings (mean =3.41). The archived reports are mostly preferred in Social Science (mean =3.34) followed by Arts & Humanities (mean =3.25) and Science & Technology mean =2.98). Datasets (mean =2.73) and administrative records (mean =2.45) were mostly preferred in Pure Science. Learning resources (mean =2.48) and question papers (mean =2.06) were mostly preferred in Science & Technology[114]. The implication of these finding is that when lectures are fully aware of the institutional repository, they would be willing to make use of its regularly. The reverse also seem to be the case when there is minimal level of awareness.

Researchers in Tanzania investigated the level of awareness of institutional repositories among lecturers in Tanzania's universities. The study adopted a mixed methods research design. The study population consisted of lecturers from across Tanzanian tertiary institutions. Simple random sampling technique was used to select 359 respondents from a population of 2,178 lecturers. Both qualitative and quantitative research instruments were employed to collect the research data. The study found that majority (84%) of the respondents were aware of the existence of IRs in their universities. Furthermore, it was found that majority (87%) of the lecturers were aware of the concept of IR, the contents to be deposited in the IR (77%), benefits of IR (65%). However, only a few of the lecturers (16%) were aware of the processes involved in self-archiving[115]. The study concluded that the lack of awareness of self-archiving process is a barrier to the use of institutional repositories among the lecturers. However, what was not explored in the study was the willingness of the lecturers to submit their research to librarians for mediated archiving in which librarians assist lecturers in uploading the research to the institutional repository.

A study for instance examined the influence of awareness and knowledge on the attitude of users towards the institutional repository. The study was a survey research design with the population consisting of lecturers from selected universities in Nigeria. The sample size was 751 lecturers and 8 librarians who are close to the operation of the institutional repository. The study sample was selected using multistage sampling procedure. The empirical data collected in the study was analysed using descriptive statistics. The result of the analysis showed that majority of the respondents (72%) reported that they are aware of the existence of institutional repository. In addition, it was shown that a significant part of the respondent (67%) also understands the benefits in the use of institutional repository. It was also found that 53% of the respondent claimed to be familiar with the content of their universities' IR., aware of their universities' IR policy (50%), and the relevance copyright issues relating to open access publishing (51%) [64]. There are various aspects of the study which makes it relevant to the current study.

The measure of awareness in this study is comprehensive as it was not just limited to having knowledge of the existence of institutional repositories. Most importantly, the study examined the sources from where the lecturers get to know about the institutional repository. This is important because the source of information is a significant factor in determining the authenticity of such information. Despite the fact many of the lecturers demonstrated positive perception about institutional repositories, it was found that they lack the actual knowledge about the use of institutional repositories. Only 17% of the lecturers rated their knowledge of the use of institutional repositories as highly adequate while 34% rated their knowledge level 'averagely adequate'. About 27% of the lecturers rated themselves 'barely adequate while 22% reported that their knowledge of institutional repository was 'not adequate'.

This was reflected in their use of institutional repositories as it was found that the library often found it difficult to convince the lecturers to deposit their research in institutional repositories[116]. The trend for mixed awareness of institutional repository seems similar across Africa.

A related study was also conducted by researchers in Nigeria to examine the use of institutional repositories among academic staff of universities in the country. The study used the correlational survey research method. The study population covered two thousand, three hundred and five (2,305) lecturers across five universities. The sample was 1,151 and this was selected through random sampling technique. The research instrument was a structured questionnaire. The method of data analysis involved the use of descriptive statistics. The result showed that majority of the respondents were aware of the existence of (Mean = 3.22); the benefits of using IRs (Mean = 3.16); and the content expected to be in the IR in their universities (Mean = 2.74). However, majority of the lecturers were not aware of; university IR policy (Mean = 2.46), publishers' policy on open access (Mean = 2.44) or the processes of depositing research into the in IR (Mean = 1.36).

As a result, while the researchers reported that awareness is high, the fact that knowing how to deposit information resources into the institutional repository is the lowest and that lecturers are not fully aware of the policies guiding the use of IR shows that the level of awareness is still low. This is reflected in the use of IR among the lecturers. The study found that, although the lecturers use the institutional repository to access published articles (Mean =3.95) and conference papers (Mean =3.64), they do not access the repository regularly. The study also found that the use of institutional repository for self-archiving is (Mean =1.92). Majority of the lecturers only deposited materials once or twice in a year[52].

Given that there may be institutional dynamics and peculiarities that determine level of awareness and use of institutional repositories especially in a multicultural society such as Nigeria, researchers have also conducted studies focus on particular institutions. A study was conducted to measure the awareness and use of institutional repositories by lecturers at University of Lagos, Nigeria. The study adopted a survey research design with the population consisting of lecturers who have been appointed by various faculties in the University as liaison officers regarding the use of institutional repository. The study sample consist of 58 lecturers selected through purposive sampling procedure.

The research instrument adopted was a questionnaire. The analysis of the responses showed that majority of respondents (55%) indicated that they form their perception of the institutional repository through various communication channel such as the University circular, other accidentally stumbled on the information while visiting the University/Library website (26%). It was also found that the respondents understand the benefits of using institutional repositories as majority agreed that submitting research to the IR is a means of preserving scholarly works (Mean =4.22), achieve recognition and promotion (Mean =2.31), earn recognition for the university (Mean =4.36), and exposes lecturers to global recognition (Mean =4.42). This moderate high level of awareness affected the use of institutional repositories.

The study found that majority of the respondents (94.4%) were willing to submit their research and other intellectual output to the repository, and they would recommend the repository to their colleagues. However, due to lack of comprehension about the total essence of institutional repository, majority of the respondents (69%) expressed fear about copyright infringement of their intellectual properties[117]. This study further validates the importance of all round awareness to the use of

institutional repositories. The effort of the library in creating liaison officers generated significant awareness among the lecturers which makes them willing to submit their research.

However, due to oversight in conducting in-depth training to educate the lecturers about all salient issues, some of the respondents are still expressing doubt about the institutional repository as a safe place to keep their research. Also, the study tested a hypothesis on the influence of awareness on submission of research to the institutional repository by lecturers. It was found that awareness does not have significant influence on the use of institutional repositories ($X2 = 1.125$; 'p' > 0.05). This finding led the researchers to suggest that awareness may not be enough to ensure the use of institutional repositories especially when the potential users lack the requisite skills and understanding regarding the use of institutional repositories.

This is buttressed by another scholar who reported that the awareness of an institutional repository is not restricted to just knowing that it exists; lecturers also need to be aware of its goals, advantages, and various usage policies. While the reviewed literature has shown improvement in the level of awareness of institutional repositories, there still appear to be a significant lack of awareness of them at the policy and technical level throughout the world, particularly in Africa[52]. The moderate awareness level reported is also not commensurate with the existing level of use. This is why other factors such as anchor factors comprising computer self-efficacy, computer playfulness and computer anxiety should be examined in relation to the use of institutional repositories among lecturers.

2.3.2 Anchor Factors and the Use of Institutional Repositories

Awareness creation for institutional repository has to do with the introduction of lecturers to all aspects of institutional repository including training on the processes involved in the submission and retrieval of information to and from the repository. The concrete outcome of this awareness effort is to make the lecturers become willing to use the institutional repository for various purposes such as submitting their research and using the institutional repository for other purposes such as information retrieval. The real job is in the actual interaction with the institutional repository user interface and searching the database. For effective use of institutional repository for any purpose, scholars have identified perceived ease of use and its antecedents such as anchor and adjustment factors as the main predictors[93,118] Making allowance for the validation of perceive ease of use as a predictor of institutional repository use among lecturers, it makes sense to say that factors that affect perceive ease of use would also affect use of institutional repositories[10]. Various studies have thus been conducted to determine the influence of anchor factors such as computer self-efficacy, computer playfulness and computer anxiety on the use of institutional repositories.

Researchers in Nigeria conducted a study to investigate the factors affecting perceived ease of using institutional repositories. The study adopted a survey research method. The population of the study included 2,302 lecturers from five selected universities in Nigeria. The researchers employed a questionnaire adapted from the Technology Acceptance Model (TAM) as the main instrument for data collection. The sample size was 1151 lecturers randomly selected from the institutions. The findings of the study showed that indicates that, anchor factors such as computer self-efficacy, computer anxiety and computer playfulness ($r = .497$, $N = 857$, $p < .05$) has a significant effect on the perceived ease of use and eventual use of institutional repositories in the selected institutions[6]. This finding however did not show the influence of each metrics

such as computer-self efficacy, computer anxiety and computer playfulness on the use of institutional repositories. This would have helped guided decision makers in selecting the right approach intervention.

Other researchers have therefore focused on each of the metrics to determine their significance in the adoption of various types of technology. Some of these studies have examined the role of computer self-efficacy as an important factor in the use of digital information systems such as institutional repositories. A group of researchers from Ghana examined the factors predicting the use of electronic resources in research and learning in Ghanaian tertiary institutions. The study adopted a survey research methodology and used a questionnaire for the purpose of data gathering. The study population were 128 lecturers and students. The study found that respondent who have a high level of computer literacy (p=0.204) are more likely to use e-resources. This shows that as people become more computer literate which is a factor in computer self-efficacy, they will be more aware of the benefits of using online resources. Knowledge of how to use electronic resources has been attributed in large part to a person's ability to use interact effectively with computer devices such as hardware, computer software, the internet, and other associated technological advancements. There seem to be a dearth of literature relating computer self-efficacy to the use of institutional repositories. However, researchers have examined how computer self-efficacy affect the use of electronic resources which represents the contents of institutional repositories.

Researchers examined the effects of computer self-efficacy, computer anxiety, and cognitive skills on undergraduate use of electronic library resources. A survey study design was applied, and a population of 1452 social science undergraduates from the study population. Random sampling technique was use to select 869 students as the

sample size. The study's findings showed that the computer self-efficacy (r=0.436; p<0.05) was one of the significant factors that affect the use of electronic library resources by the respondents. This finding led the researcher to suggest that, in order to improve respondents' usage of electronic library resources, library administration in the tertiary institution should take respondents' computer self-efficacy into account[119]. Although the study did not specifically mentioned institutional repositories, the use of 'electronic library resources' of taken to include all the resources and databases such as institutional repository.

This is also shown in a study which examined the use of electronic information resources by Nigerian professors. The researchers adopted a descriptive survey design and used a structured questionnaire to collect qualitative data. The study population was made of 246 lecturers who have attained high ranks such as full professorship, associate professors and readers from selected federal universities in south west Nigeria. The findings of the study showed that computer self-efficacy (p = 0.194) has significant influence on the use of electronic information retrieved from various sources which included institutional repositories. It was shown that three dimensions of computer self-efficacy tested in the study such as proficiency in computer use (Mean = 2.91), confidence in information retrieval skills (Mean = 2.41) and self-appraisal on the use of information systems such as institutional repositories (Mean = 2.54) combined together to represent about 82% of the overall factors affecting the use of e-resources by the respondents. What is observable in this study is the mean score of the information retrieval skills of the professors which is rather low compared to others[120]. The effect of low computer self-efficacy on the use of information systems and information resources is constant as it was also reported among other group of users such as students.

A group of researchers examined the impact of computer self-efficacy on the use of electronic information resources among students in Ogun state, Nigeria. A survey research design was adopted for the study. A multi-stage sampling procedure was used to select 370 respondents for the study. Data were collected with the use of a structured questionnaire. Frequency counts, percentages, mean, standard deviation, were used to analyse the data. The result low level of usage of electronic resources such as Internet (Mean = 1.94) YouTube (Mean = 1.74), Search engines (Mean = 1.72), and E-mail (Mean = 1.70). The results reveal the respondents' usage of electronic information resources is constrained by " Information overload" (Mean =3.02), "Poor internet access" (Mean =2.87) and "Lack of assistance from library personnel" (Mean =2.72). The study concluded that students will utilize the electronic information resources if they have the necessary level of computer self-efficacy[121]. This lack of self-efficacy among information users, unless resolved, would also affect the use of institutional repositories. Indeed, it is suggested that it can even hinder the development of institutional repositories.

Researchers also examined the challenges militating against the development of institutional repository in Nigeria. Descriptive survey research design was employed by the researcher. The study's sample included 120 systems librarians from federal, state, and private university libraries in Nigeria. A questionnaire was used as the data gathering tool. The study's findings indicated that Nigeria currently has a low level of institutional repositories. Low computer self-efficacy was implied in the study as many of the respondents reported that many librarians lack the required ICT (Mean = 3.5) and the interest in acquiring the needed skills for the management and use of institutional repositories (Mean = 3.2). The implication of this study is clear, computer self-efficacy can determine the growth rate of institutional repositories. It

can also determine its use among lecturers[122]. When lecturers lack positive self-efficacy on the use of technology, they are likely to shy away from using institutional repositories as has been demonstrated in previous studies.

In another study, the use of institutional repositories in Nigerian university was also examined. The study used a descriptive survey research design. Using stratified and multistage sampling approaches, 300 staff members were chosen from the study's 5000 thousand participants. Data was collected using a structured questionnaire, and it was analysed using the mean, tables, and frequency counts. The results showed lecturers in Nigerian Universities often perceive the institutional repository as not easy to use. the reason behind this was reflected in the level of computer self-efficacy of the respondents as the complained that they were not trained on the use of institutional repositories (Mean = 6.3) so they found the user interface unfriendly (Mean = 6.4)[123]. It was suggested that, in order to make institutional repositories user-friendly, familiar keywords and metadata should be used when creating their contents. It was also suggested that librarians should market the contents of institutional repositories to staff and other researchers so that they are aware of what is available for them to access and use for their research and studies. Studies have however shown that computer self-efficacy can be gained with exposure to technology.

The ability of lecturers to develop computer self-efficacy when it is necessary was demonstrated in study which examined how nursing instructors coped with the changes caused by the COVID-19 pandemic. The study examined the online self-efficacy of nursing lecturers in the USA who abruptly had to adopting online teaching platforms. The study adopted a cross-sectional, descriptive design. The study population was drawn from ten universities across the United States. The sample size is made of 84 lecturers in nursing. a questionnaire was used to collect study data.

The study found that, while 75% of the lecturers scored high in self-efficacy, their student engagement ability was rated low. This shows that regular and sustained interaction is necessary to effectively use the computer[124]. The study further suggested that computer playfulness can help lecturers attain computer self-efficacy when there is a sudden need to adopt a new technology. however, computer playfulness itself is one of the anchor factors affecting the perceived ease of use and, consequently, the use of institutional repositories. Computer playfulness has therefore been examined in some studies as factor in the use of technologies such as the institutional repository.

Computer playfulness, along with other anchor factors as a construct of adoption and use of technology has been explored by various researchers. Researcher from Malaysia, examined how the role of anchor factors on the efficient use of computers systems among employees in the Malaysian public sector. The study adopted a survey method and the population included officers at the Civil Defense Department Headquarters, in Kuala Lumpur, Malaysia. Questionnaire was used as the main data collection instrument.

The study found that only 20 % of the respondent demonstrated computer playfulness with 80% having computer anxiety. Specifically, it was found that 16% of the respondent are often mildly anxious . while 40 % of the respondents reported that they often feel very anxious (2%) whenever they need to the repository. This affected their ability to use various office technology and ultimately affected their job performance[125]. This study show that computer playfulness is related to both computer self-efficacy and computer anxiety. Computer playfulness can breed a sense of computer self-efficacy and eliminate computer anxiety. This means that computer playfulness is the opposite of computer anxiety. The finding is relevant in this study because computer playfulness has often been studied among youths and

adolescents. Testing it on adult and finding that it affect the use of technology is significant.

In a study conducted in the United States of America and Canada, researchers sought to highlight predictors of learning management system by lecturers at a faith-based university. A 40-item web-based questionnaire based on the TAM 3 was administered to 200 randomly selected lecturers. This questionnaire assessed the elements that impact their utilization of their university's LMS. To examine essential linkages between key variables in the model, correlations, regressions, and path analysis were used. Analysis of the results revealed significant disparities across linkages in the TAM 3 model. Subjective Norm, Image, Computer Self-Efficacy, Computer Anxiety, Computer Playfulness, Perceived Enjoyment, Objective Usability, and Experience, in particular, had no substantial influence on the current model. The common dynamic across all of these factors is that increased fluency leads to greater usage of computers[126].

In another study conducted in the USA, to contextualize playfulness within the wider individual trait literature, researchers investigated its conceptual base in the Big Five characteristic of openness to experience and provides empirical relationship between them. The researcher found that, although previous research has identified many positive user outcomes related to technology adoption and use, this research shows that it can also lead to negative consequences, such as nonwork-related technology use at work, or computer loafing, which has received little attention in IT research[96].

Additionally, researchers from United Arab Emirates (UAE) conducted a study to develop and expanded model for the study of adoption of e-learning applications by students. The study is a survey in which 435 students participated. The research

instrument used for data collection was a questionnaire. The study found that computer self-efficacy, enjoyment, and computer playfulness all have a strong beneficial influence on e-learning system perceived ease of use. These findings imply that when information users have enough computer abilities and a favorable disposition to connect spontaneously with the e-learning system, the system's effectiveness increases significantly. The findings also demonstrated that pleasure and accessibility had a considerable beneficial influence on e-learning systems' perceived utility [127].

In another study conducted in Nigeria, researchers explored the influence of TAM 3 anchor elements such as computer self-efficacy, perceptions of external control, computer anxiety, and computer playfulness on the use of online discussion forums by postgraduate students. The study adopted a survey research method. the study respondents are made up of 121 Library and Information Science (LIS) postgraduate students from the university of Ibadan, Nigeria. The instrument for data collection was an online questionnaire. The study found that computer self-efficacy, perceptions of external control, computer anxiety, and computer playfulness have a significant influence on the use of ODF As a result, the researcher advises that Online Discussion Forums be supported for learning in postgraduate education[123].

Researchers from Saudi Arabia also applied the TAM3 model to investigate a causal explanation for students' attitudes about the acceptance and incorporation of e-learning in academic contexts. The study adopted a survey research method. The study sample included 286 students from King Khalid University, KSA. The research data was gathered by a structured questionnaire based on the TAM3 questionnaire. The data collected was analyzed using structural equation modeling to uncover the elements that impact learners' intentions to utilize e-learning. The findings revealed

the elements that predict e-learning technology adoption include computer playfulness[129]. The study found that students with computer playfulness are more disposed to test out new technology introduced by the school, more than those who lack computer playfulness. These findings from all corners of the world based on the TAM theory which has been validated as useful in all settings can also be used to gauge computer playfulness among the lecturers

In a related study in Nigeria, researcher investigated the elements that influence lecturers' usage of institutional repositories in Nigeria. Among the variables considered was awareness, anchor, and adjustment factors. The study focused on institutions that have set up institutional repositories for at least four years at the time of data collection. A descriptive survey and a purposive sampling approach were utilized. Data was gathered from 857 instructors via a questionnaire. The study found that awareness, anchoring, and adjustment variables influence professors' usage of institutional repositories in Nigerian institutions. The study suggests that libraries should conduct more awareness programs and that lecturers utilize computers on a regular basis to increase their computer self-efficacy and computer playfulness. Computer playfulness and computer anxiety are also recognized as the opposite sides which cannot exist together in the mind of a single person.

Computer anxiety is seen as one of the factors determining effective use of technology. The role of computer anxiety has been highlighted in the use of various technologies which indicated its relevance to the use of institutional[90]. Most of the studies have examined the influence of computer anxiety as a determinant of perceived ease of use which has been recognized as a predictor of technology acceptance and use. Researchers in the United States examined the factors determining the perceived ease of use of video digital libraries, a form of institutional

repository. The study made use of a quantitative research approach which collected data from 202 academics.

The findings of the study show that computer anxiety (B = -0.213, p < 0.001) was among the factors that significantly influenced the perceived ease of use of video based institutional repositories among the respondents. Specifically, the study found that computer anxiety had a relatively stronger, yet negative, influence on perceived ease of use. what this means is that the high the level of computer anxiety, the more negative the perceived ease of use among institutional repository users[130].

Researchers examined the effects of computer self-efficacy, computer anxiety, and cognitive skills on undergraduate use of electronic library resources. A survey study design was applied, and a population of 1452 social science undergraduates from the study population. Random sampling technique was use to select 869 students as the sample size. The study's findings showed that computer anxiety ($r=-0.226$; $p<0.05$), was one of the significant factors that affect the use of electronic library resources by the respondents. This finding led the researcher to suggest that, in order to improve respondents' usage of electronic library resources, library administration in the tertiary institution should put effective strategies in place to eliminate computer anxiety among the students and other library users[130].

Researchers from south-south Nigeria investigated how institutional repository can be used to boost networked information for university library services. It introduced university libraries and institutional repositories, the requirements for establishing institutional repositories, institutional repositories and networked information, the perceptions of staff regarding the adoption of institutional repository, and awareness of institutional repository. It also highlighted the elements that influence the

acceptance and utilisation of institutional repositories. The study found that institutional repositories are useful tools for scholarly collaboration and resource sharing, as well as for projecting the university community's research output. However, it was reported that one of the significant problems affecting the use of institutional repositories is the computer anxiety. The study confirmed that many lecturers are still wary of using computers which often prevent them from effective use if institutional repositories[131]. Indeed, computer anxiety have been found to affect the overall use of electronic information resources obtained from institutional repositories and other databases

A study examined the relationship between computer anxiety and the usage of information technology tools by library and information science undergraduates in a Nigerian university. The study adopted a social survey model and collected quantitative data with the use of a questionnaire. The population of the study were students in the department of Library and Information Science. Stratified Random Sampling Technique was utilised to choose 169 students for the study. Simple percentages, frequency, Mean and Standard Deviation, and Pearson product moment correlation were used to examine the data. Findings indicate that LIS undergrads have a significant level of computer anxiety. The study found that the respondents are usually tense (mean = 3.22), feel anxious (mean = 2.91) and, worried about making mistakes (mean= 2.88) whenever they had to use the various information technology.

This was not however reflected in their use of information technology such as institutional repository. It was reported that they frequently use mobile technology (73%) CD-ROM information source (66.7%), internet search engines (58.3%) and Online information resource (43%)[132]. This result can be explained in the sense that the student had to use technology to achieve academic purposes and despite their

anxiety, they had to use the resources. The fear of failure must have overcome their fear of computers. Notwithstanding, the researchers opined that the degree of computer phobia could be linked to a lack of a supportive environment and suggested that tertiary institutions should create a more favourable learning environment and adequate IT exposure for students.

Researcher have further shown that computer anxiety can limit the ability of information users to acquiring computer literacy skills and subsequent use of institutional repositories and other sources of information. A study was conducted to access factors determining the level of access to digital information resources in Nigerian University libraries based on various academic disciplines. The study is an Ex-Post Facto study. The population included 30,121 undergraduate students from seven federal universities from the southern region of Nigeria. Random sampling was employed to select 1506, which represented 5% of the total population. A questionnaire was employed to collect data from the study representatives.

The study found that computer anxiety varies according to the discipline of the respondents. The study found that majority of students from social science (mean = 2.52) Arts and Humanity (2.88) and Science and Technology (mean = 2.56) all reported that computer anxiety is a major factor in their low use of electronic information resources. This finding is an indication that institutional repository developers must make attempt to conduct community in order to identify anchor factors such as computer anxiety that may affect the perceived ease of use and eventual use of institutional repositories[133]

Computer anxiety as a factor in the use of institutional repositories was also shown in the findings of another study. This study examined the use of electronic information

resources by Nigerian professors. The researchers adopted a descriptive survey design and used a structured questionnaire to collect qualitative data. The study population was made of 246 lecturers who have attained high ranks such as full professors, associate professors and readers from selected federal universities in south west Nigeria. The study showed that computer anxiety (p = 0.883) is one of the significant factors determining the perceived ease of use of electronic information resources such as found in institutional repositories. The study found low level of computer anxiety among the respondents and linked this to the high level of computer self-efficacy among them. This implies that high level of self-efficacy would lead to low level of anxiety in using technologies such as institutional repositories[130] The study finding is instructive because finding that low anxiety facilitate improved use of institutional repository can guide the library and information professionals in designing appropriate intervention measures.

2.3.3 Awareness, Anchor Factors and Use of Institutional Repository

While understanding specific variables that influence the use or non-use of institutional repositories is desirable, scholars are also aware that a combination of various interrelated factors often combine together to shape the attitude and eventual decision of academic staff of universities when it comes to the use of institutional repositories. Consequently, there have been studied that have combined the various factors together to examine the use of institutional repositories by lecturers. The closest of such studies is one that examined the influence of awareness, anchor, and adjustment factors on the use of institutional repositories in Nigeria.

The study was conducted among lecturers from selected universities in Nigeria with the aid of a questionnaire adapted from the Technology Acceptance Model 3 (TAM 3).

The study found that awareness (B= 0.110, t =3.356, p < .05), anchor factors (B = 0.111, t = -3.071, p < .05), and adjustment factors (B = .544, t = 14.841, p < .05) are all predictors of the use of institutional among academic staff of universities in Nigeria. The study further showed that adjustment factors and awareness are stronger predictor of institutional repositories than anchor factors[95]. This result does not control for gender, experience and age all of which have been found to influence anchor factors such as computer self-efficacy, computer anxiety, and computer playfulness.

In a related study, examined the influence of awareness on the usage of repository software (DRS). The paper also studies the factors, which influence the level of awareness and usage of institutional repositories by librarians in India. The study adopted a survey research method using a web based survey to collect the research data. The study population included academic librarians and a sample of 374 was selected using random sampling technique. The data collected was analysed using descriptive statistics. The study found a high level of awareness of DSpace (Mean = 2.92) and Greenstone digital library software ((Mean = 2.18) among the respondents.

It was however found that the use of institutional repository was low among the respondents as 33% reported that they use DSPace and12% used Greenstone. The combination of those who use institutional repositories therefore amount to 45% which is not up to half of the respondents. The study attributed the low level of institutional repository use to incomplete awareness among the respondents as only a few of them attend workshops, seminars and conferences dedicated to awareness creation for institutional repositories[116].

Researchers from Saudi Arabia also applied the TAM3 model to investigate a causal explanation for students' attitudes about the acceptance and incorporation of e-learning in academic contexts. The study adopted a survey research method. The study sample included 286 students from King Khalid University, KSA. The research data was gathered by a structured questionnaire based on the TAM3 questionnaire. The data collected was analyzed using structural equation modeling to uncover the elements that impact learners' intentions to utilize e-learning. The findings revealed the elements that predict e-learning technology adoption include computer playfulness[134]. The study found that students with computer playfulness are more disposed to test out new technology introduced by the school, more than those who lack computer playfulness. These findings from all corners of the world based on the TAM theory which has been validated as useful in all settings can also be used to gauge computer playfulness among the lecturers

2.4 Conceptual Model

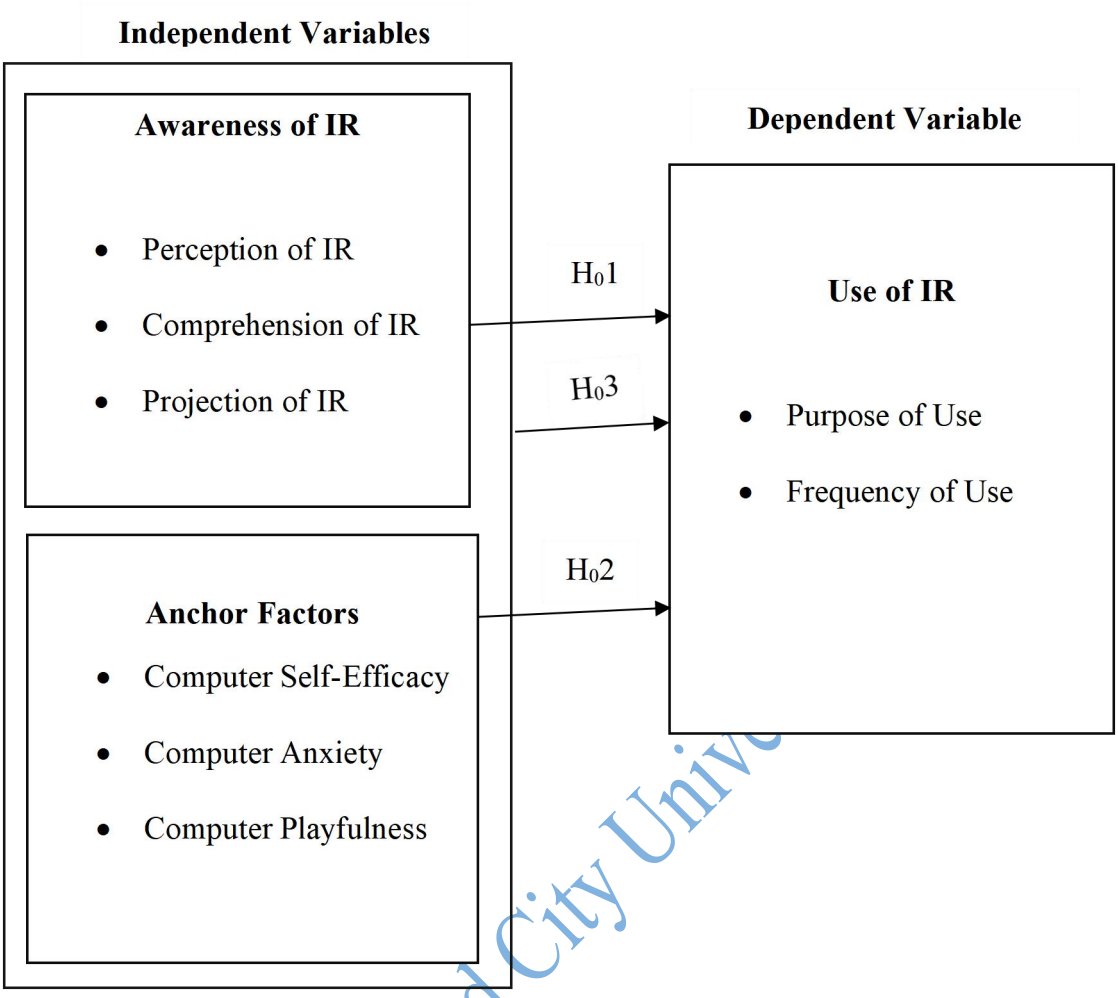

Figure 2.4: Conceptual model for the influence of awareness and anchor factors on the use of institutional repositories by academic staff of universities in Nigeria. (Source: Researcher, 2023)

The conceptual model shows the premises on which the study is based and the interrelationship between the study variables.

As shown in the model, use of institutional repository might be influenced by either or both of awareness and anchor factors. What will be measured as use of institutional repositories is the purpose and frequency of use. That is, the repositories would be regarded as 'used' based on how frequent and for what purpose the repository is being used.

There are three hypotheses to be measured based on the model. Awareness is a factor in the institutional repository use. In the context of this study, awareness is achieved when the lecturer has moved beyond perception, which represents knowledge about

the existence of the institutional repository and basic information about its objectives, to higher level such as comprehension and projection. Comprehension is operationalized to mean the understanding of the functions of the repository and acquisition or possession of the necessary skills to accomplish basic tasks such as self-archiving and retrieval of information from the repository. This can be through training or previous experience.

Comprehension also covers, the knowledge of policies guiding the use of the institutional repository and the types of information that can be deposited or retrieved from it. In addition, it includes the proper awareness of the objective the institution wishes to achieve by setting up the repository. Projection on the other hand is the foresight to understand, not only the immediate but also the long term benefits of using the institutional repository. The fact that awareness is expected to lead to use of institutional repositories makes it imperative to examine the influence of other factors such as anchor factors that could determine the perceived ease of use of the institutional repository.

Anchor factors are inherence skills or traits that predispose a lecturer to perceive the institutional repository as easy or difficult to use. The anchor factors include; computer self-efficacy, computer playfulness and computer anxiety. Computer self-efficacy refers to the self-judgment of the lecturers regarding their ability to use the institutional repository as a computer based system. A lecturer who has a low level of computer self-efficacy may believe he or she would never learn enough to use computers skillfully. Closely related to self- efficacy is computer playfulness.

Computer playfulness is the propensity for interacting with computers just for the fun and to satisfy some curiosity. Computer playfulness predispose lecturers to be eager to interact with the institutional repository and learn about its functions. Both

computer self-efficacy and computer playfulness are expected to be positively correlated to the use of institutional repositories. On the other hand, computer anxiety is expected to have negative influence on the use of institutional repository among the lecturers.

Computer anxiety can be simply regarded as computer phobia. Computer anxiety is a situation whereby a lecturer feels nervous and aggravated when it is time to make use of institutional repository. This often make them procrastinate or avoid the use of institutional repository especially when there is no one to help. Computer anxiety may also impede the ability of lecturers to acquire the necessary skills and become proficient in the use of institutional repositories. In the context of this study, all the factors will be measured to understand their significance as predictors of institutional repository use by lecturer. This is expected to provide the institutions concerned with empirical evidence regarding what they should look for to improve or maintain the level of use of their institutional repositories.

2.5 Summary of Gaps in Literature Reviewed

The literature review has followed a thematic format based on the stated objectives of the study. While the tracing of the development of institutional repositories requires a global approach, an attempt has been made to localize the review of literature on the use of institutional repository as much as possible due to the gap between Nigeria and the developed world regarding the developing and using institutional repositories for various purposes. The review has firmly placed the stimulus for the development of institutional repository on the natural course of development which saw the emergence of information technology and the internet. It was found that the

opportunity provided by the internet for researchers to quickly exchange their research materials was often too good for researchers to pass over. Apparently, scholarly publishers were becoming too powerful; controlling what get published and deciding arbitrarily the fees institutions must pay to access scholarly resources.

The earliest form of institutional repositories were thus not institutional but organisational or professional association based. The earlier Community of Practice created by scientists leveraged on the Listserv technology to create message boards where researchers can exchange information about trends in the scientific world. This later developed to become platforms where full text document can be deposited and accessed. It provided great opportunity for collaboration and facilitated quick publicity for scientific research. Researchers found that, even when the research is not completed yet, it can still be of help to the society or other researchers. Tertiary institutions eventually saw the advantage of this process and became interested.

The economic downturn which affected some American and European institutions in the 80s led to some strategic thinking. One of the key areas of focus was in the amount of subscription paid to journal publishers by academic libraries. The institutions become burdened with the tactics of the publishers to force them to subscribe to bundle journals, some of which are not relevant to their subject areas. This issue was termed the serial crisis. It affected institutions all over the world and hit African institutions even harder. This led to a movement called the open access movement.

The open access movement was championed by researchers, information scientist and librarians. It argues that the products of research should not be commercialized because most researchers at that time were funded through taxpayers' fund. Research was thus seen as a public service therefore research materials should be made

accessible to all. The open access also embodied an altruistic philosophy; it considered the plight of researchers in poor countries who were being denied access to quality research due to the inability of their institutions to subscribe to expensive scholarly databases. This open access idea therefore argue that the only cost that should be incurred by researchers is the cost of accessing the internet. But this idea met stiff resistance from the publishers.

The open access movement was seen as a disruptor and through various maneuverings, the publishers were able to shape the narration which resulted in different open access approaches such as the gold, green and hybrid open access approaches. This effectively shifted the cost of publishing to researchers and their institution. Instead of information users paying to access information, the information producers now have to pay to get published. In the quest for a better alternative, the idea of the institutional repository was mooted. This is the convergence of the open access movement and the development of institutional repositories.

The open access movement saw a lot of potentials in institutional repositories. One, it could be designated from the beginning as a non-commercial scholarly database. Two, it empowers the individual institution to have control over its intellectual output. Three, it provides visibility for research by scholars even beyond their own institutions. Institutional repository was initially touted as a rival to existing journal publishing platforms but this idea was modified due to quality control concerns. It was difficult to envisage how the peer review process would be managed by academic libraries who have come to become the natural home of institutional repositories. The contents of institutional repositories were therefore broadened to include research works that have undergone through some peer review process such as pre-prints, published articles, seminar papers, book chapters etc. It also includes others such as

inaugural speeches, theses and dissertation, course materials, institutional archives etc. With the development of various open-source software, the institutional repository became the arrowhead of the open access movement it was expected to become.

Nearly all institutional repository software were available for download cost-free. The first one was the e-print software. It was soon followed by D-space and others such as Fedora, greenstone, HAL and several others that are now being used by institutions all over the world. They are designed to hold information resources in diverse formats such as text, audio, video, images, models and software. All of these are made available on the internet. The institutional repository is a product of the institutions that made it so the configurations rules differ around the world. In order to ensure some standards, several organisations have come on board to deal with issue relating to institutional repositories.

These organisations include the SherpaRomeo project, a combination of two organisations dedication to tracking and recording the development of institutional repositories around the world. Then there is the OpenDoar. This is an online database of all open access institutional repositories. It allows researchers to search across these databases and retrieve information from any of them. RoarMap is another database designed to monitor open access mandate across the world. It was found that many institutions had to issue mandates which are some sort of legal directive for their researchers and lecturers to deposit or publish some of their research open access through institutional repositories.

Mandates become necessary due to perception among scholars about the quality on information resources in institutional repositories. Some researchers are so used to the existing ways of publishing that they view an accelerated publishing platform as of poor quality. As a result, institutional repositories encouraged these researchers to

publish their work elsewhere and then submitted a copy to their institutions' repositories. Through this means, institutional repository witnessed a rapid development within a decade rising from a few hundreds to over three thousand indexed repositories.

Institutional repository development is also growing in Africa in general and Nigeria in particular. Nigeria, however has to do better considering the number of online repositories compared to the number of institutions available in the country. In addition, those institutional repositories already functioning in the country are also facing some issues which may affect their ability to reach their full potentials. The major challenge is the use of institutional repositories by lecturers.

Lecturers are important stakeholders in institutional repository development all over the world. This is because institutional repository thrives on the patronage of lecturers more than any other users group in the university. The research works produced by the lecturers and their students (theses and dissertations) are expected to form the bedrock of the repository collection. In addition, lecturers are expected to make use of the repository for information retrieval whenever they need information for various purposes such as research, preparation of course materials, teaching and other activities. In addition, the regular depositing of lecturers' research outputs enriches the repository and portrays the university in a good light to the public. As an open access database, institutional repositories also ensure better visibility and more citation for research deposited in it than those kept behind paywalls. However, lecturers are not making effective use of institutional repositories due to variety of reason which have been examined in other studies.

As seen in this review, factors such as awareness and anchor factors have not been fully examined as determinant of information repository use among lecturers. The few

studies on awareness do not always measure the level of awareness in a systematic manner. So, it was found that users are aware of the institutional repository but not how to use it for self-archiving or to retrieve information from it. In some studies, it was also reported that users became aware of institutional repository through other people apart from librarians. This can create negative impression of institutional repositories because not everybody would understand the essence of institutional repositories. Several studies have however confirmed that the level of awareness of lecturers determine their frequency and purpose of using institutional repositories.

Awareness, however creates the willingness and intention to use repositories. Lecturers can also face other challenges in their attempt to make use of the institutional repository, whether for self-archiving or information retrieval. Study of the use of similar information systems and a few studies focusing on institutional repositories have showing that perceived ease of use is a significant predictor of acceptance and use of any technology, including institutional repositories. Perceived ease of use is however, determined by various factors which include computer self-efficacy, computer playfulness and computer anxiety. These three factors are therefore expected to influence the use of institutional repositories.

The reviewed literature has shown that the level of computer self-efficacy varies among lecturers and this is shown in their ability to use the institutional repository even when they want to use it. Lecturers are effectively part of the 'old' generation unlike the children born in the digital age so this might affect their perception of their ability to make effective use of the institutional repository. Computer self-efficacy is also linked to computer playfulness and computer anxiety. There are diverse opinions regarding whether computer self-efficacy emerge from computer playfulness or the other way round. However, it is unanimously agreed that computer playfulness can

eliminate computer anxiety. Studies have shown that computer self-efficacy, computer playfulness and computer anxiety all have significant influence on the use of information technologies such as the institutional repositories. However, there are few studies that have fully examined these links. This gap will be filled at the end of this study.

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Chapter Three

Methodology

The chapter presents the methodology and data analysis techniques that are employed to achieve the research objectives. It also describes the research design, method of data collection for the study, the population of the study, the sample and sampling technique, the research instrument, validity and reliability of the instrument as well as the strps to be followed in analysing the research data collected from the respondents.

3.1. Research Design

The research design used in this study is descriptive survey research. Descriptive research focuses on the collection of data and information about the research problem to enable the researcher to test hypotheses or answer questions about the current status of the subject of the study. Clearly, the purpose of descriptive research is to describe, as well as explain or validate a hypothesis or objective regarding a certain group of individuals. In this case, the research design enabled the researcher to properly measure the status of the study variables such as awareness, anchor factors and institutional repository use among the lecturers. It also facilitated the test of hypotheses on the influence of the independent variables on the dependent variable[1].

3.2 Population of the Study

There are about fourteen Universities in Oyo and Osun state. However, only four of them possess functioning institutional repositories which is the inclusion criteria for this study. The population for this research includes 1,009 lecturers from the universities that meet this criterion, namely; Ajayi Crowther University, Oyo State, University of Ibadan, Oyo state, Obafemi Awolowo University, Ife and Redeemers University, Ede, Osun state. Academic staff from these universities were selected

purposefully because the institutions have developed functional institutional repositories accessible online. The population is presented in the table 3.1.

Table 3.1: Population Distribution

Universities	Lecturer Population
Redeemers' University, Ede	153
Ajayi Crowther University, Oyo	187
University of Ibadan	399
Obafemi Awolowo University	270
Total	**1,009**

Source: National University Commission (NUC), 2021

3.3 Sample and Sampling Techniques

The sampling procedure went through various stages before the sample size was determined.

The first stage is the determination of the population from each institution. This is important because the population of the Federal universities is highly disproportionate to that of the private universities selected in this study. As a result, only lecturers from faculties of Education and Science from the federal universities were included to strike a balance in the population. As shown in Table 3.1, the total population is 1,009. Stage two, The Taro-Yamane sample size formula is used to determine the sample size. The Taro Yamane formula is presented below:

n= N/ (1+N (e) 2): Where: 'n' represents the sample size; 'N' represents the study population, and 'e' signifies the margin error

For the current study:

$$n = \frac{1{,}009}{(1 + 1009\ (0.05)^2)}$$

$$n = \frac{1{,}009}{(1 + 1009\ (0.0052)}$$

$$n = \frac{1{,}009}{(1 + 2.5225)}$$

$$n = \frac{1{,}009}{3.525}$$

n= 286

The third stage involves the use of stratified sampling technique to determine the sample from each stratum (Universities). This will be done using the formula below:

$$\frac{\text{Stratum size}}{\text{Study Population}} \text{ X Sample size} = \text{Stratum Sample Size}$$

The sample size for each s stratum (University) is presented in Table 3.2

Table 3.2: Sample Size

Universities	Lecturer Population	Sample
Redeemers' University, Ede	153	43
Ajayi Crowther University, Oyo	187	53
University of Ibadan (Faculty of Education and Faculty of Science)	399	113
Obafemi Awolowo University (Faculty of Education and Faculty of Science)	270	77
Total	**1,009**	**286**

Source: Researcher, 2023

3.4 Description of the Research Instruments

The instrument used in collecting data for this study was a structured questionnaire. The questionnaire is divided into four distinct sections as follows:

Section A: Demographic information. The section has items designed to collect the demographic data of the respondents. It has items such as Name of Institution, Age, and Gender, Work experience and academic qualification etc.

Section B: Use of Institutional Repository. The section combines the frequency of use and purpose of using institutional repositories. It has items such as "How frequently do you make use of institutional repositories?"

Section C: Awareness of Institutional Repository. The section is adapted from the situational awareness theory. The statements in the section were adapted from a related study[1]. It has statements such as "I have knowledge of the existence of IR in my institution", "I understand the items that can be deposited in IR" etc. All of the

items are measured using a 4-point Likert scale such as 4= Strongly agreed; 3= Agreed; 2 = Disagree; 1= Strongly disagree

Section D: Anchor factors. This section measures the anchor factors such as computer self-efficacy, computer playfulness and computer anxiety. The statements in the section were adapted from a related study[2]. It has statements such as "I feel nervous about using institutional repositories", "I feel comfortable using institutional repositories on my own" etc. All of the items are measured using a 4-point Likert scale such as 4= Strongly agreed; 3= Agreed; 2 = Disagree; 1= Strongly disagree

3.5 Validity of the Research Instrument

Validity in the context of research instruments refers to the ability of the instrument to measure what it is supposed to measure[3]. In order to ensure its face and content validity, the research instrument was subjected to the scrutiny of experts especially the thesis supervisor and other experts in the department of Information Management who vettedall the items for face validity.

3.6 Reliability of the Research Instrument

The reliability of a research instrument relates to its ability to be consistent in measuring the variables it is designed to measure[4]. In order to ensure the reliability of the study instrument, 30 copies of the questionnaire were administered on academic staff from Dominion University, Ibadan who are not part of the study. The returned questionnaire was analysed and the Cronbach alpha value were measured to see if it meets the acceptable standard. The results shows that the awareness scale has a Cronbach alpha value of 0.78 while the anchor factor scale has a value of 0.76. The use of institutional repository scale has a value of 0.71.

3.7 Method of Data Collection

The questionnaire was administered by the researcher with the help of four research assistants who were trained for the purpose. Each research assistant was selected from the responding institutions for maximum efficiency. The whole data collection exercise from the respondents lasted a combined period of five weeks.

3.8 Method of data analysis

The data collected from the field was analysed using a combination of descriptive and inferential statistics. The demographic data and the research questions were analysed using descriptive statistics (simple frequencies and percentages as well as means, and standard deviations). In addition, inferential statistics in the form of linear regression were used to measure the first and second hypotheses while the third hypothesis was analysed using multiple linear regression analysis.

Endnotes

1. C.C. Okeji, M.E. Eze, & N.M. Chibueze, *Awareness and use of self-archiving options among academic librarians in Nigerian universities*. **Global Knowledge, Memory and Communication.** 2018.

2. A. A. Bamigbola & A. E. Adetimirin, *Assessing Determinants of Perceived Ease of Use of Institutional Repositories by Lecturers in Nigerian Universities*, **International Information & Library Review**, 52(2), 2020. 95-107, DOI: 10.1080/10572317.2019.1662261

3. J. Rose, & C.W. Johnson, *Contextualizing Reliability and Validity in Qualitative Research: Toward More Rigorous and Trustworthy Qualitative Social Science in Leisure research.* **Journal of Leisure Research**, *51*(4), 2020. pp.432-451.

Chapter Four

Results and Discussion of Findings

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This chapter presents the results of data collected in the course of the research. The researcher administered the study questionnaire to academic staff from two four universities in Oyo and Osun State. Out of the 286-questionnaire administered, 212 was completed and returned. This represents 74.1% return rate which is considered adequate for analysis and subsequent generalization. The breakdown of the retuned questionnaire is provide in Table 4.1. The decision rule for the descriptive analysis is as follows; 1.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high. Also, the hypotheses will be tested 0.05 level of significance.

Table 4.1: Questionnaire Return Rate

Universities	**Administered**	**Returned**
Redeemers' University, Ede	43	39
Ajayi Crowther University, Oyo	53	40
University of Ibadan (Faculty of Education and Faculty of Science)	113	76
Obafemi Awolowo University (Faculty of Education and Faculty of Science)	77	57
Total	**286**	**212**

Source: Fieldwork, 2023

4.1 Demographic Analysis

Table 4.2: Demographic Analysis

		Frequency	Percent
Institution	University of Ibadan	76	35.8
	Obafemi Awolowo University	57	26.9
	Ajayi Crowther University	40	18.9
	Redeemers University	39	18.4
	Total	212	100.0
Sex	Male	107	50.5
	Female	105	49.5
	Total	212	100.0
Age	25-29	74	34.9
	30-39	70	33.0
	40-49	47	22.2
	50-59	12	5.7
	60 and above	9	4.2
	Total	**212**	**100.0**
Rank/Designation	Professor/University Librarian	2	0.9
	Associate Prof/Deputy UL	10	4.7
	Senior Lecturer/Principal Librarian	15	7.1
	Lecturer I/Senior Librarian	30	14.2
	Lecturer II/Librarian1	49	23.1
	Assistant Lecturer/ Librarian II	78	36.8
	Graduate Assistant	28	13.2
	Total	212	100.0

Source: Fieldwork 2023

Table 4.2 presents the demographic distribution of the respondent. The table shows that the 57 (26.9%) respondents were from the universities of Ibadan, 57 (26.9%) of the respondents were Obafemi Awolowo University, Ile-Ife, while 40 (18.9%) were from Ajayi Crowther University, Oyo and 39 (18.4%) were from Redeemers University, Ede. This shows that majority of the respondents were from the university of Ibadan. Gender wise, there were 107 (50.5%) male respondents compared to 105 (49.5%) female respondents meaning that male respondents are in the majority. In

term of age distribution, 74 (34.9%) of the respondents are between the age 25 to 29, 70(33%) are in the 30-39 years age bracket, 47(22.2%) are aged between 40 to 49years while 12(5.7%) are aged between 50 to 59 years while 9 (4.2%) are in the bracket 60 years and above.

The data presented in Table 4.2 also shows the rank/designation of the respondents. There are 2 respondents with the rank of Professor/University Librarian which constitute 0.9% of the total respondents. Also, 1(4.7%) of the respondents indicated that they are either Associate Professor or Deputy University Librarian. In addition, 15 (7.1%) are Senior Lecturer or Principal Librarian, 30 (14.2%) are Lecturer I or Senior Librarian; 49 (23.1%) Lecturer II or Librarian1; 78 (36.8%) are either Assistant Lecturer or Librarian II while 28 (13.2%) indicated that they are Graduate Assistants. The age and rank of the respondents show a youthful population balanced with age and experienced.

4.2 Presentation of Research Questions

4.2.1: What is the level of institutional repository use among academic staff of universities in Oyo and Osun state?

Table 4.3a: Frequency of Institutional Repository Use among Academic Staff of Universities in Oyo and Osun state?

Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
I make use of institution repositories Daily	44 (20.7%)	15 (7.1 %)	---	153 (72.2%)
I make use of institution repositories twice a week	13 (6.2 %)	2 (0.9%)	9 (4.2%)	188 (88.7%)
I make use of institution repositories weekly	60 (28.7%)	7 (3.3%)	--	145 (68.4%)
I make use of institution repositories at least once a month	20 (9.5%)	10 **(4.7%)**	36 (17.0%)	146 (68.8%)
I have never use of an institution repository	---	41 (19.3%)	--	171 (80.7%)

Source: Fieldwork 2023

The first research question focused on the level of institutional repository use among academic staff of universities in Oyo and Osun state. The level of use is measured by frequency of use and purpose of use. As presented in Table 4.3a, it can be seen that 59 (27.8%) of the respondents make use of institutional repositories daily, 15 (7.1 %) use them twice a week while 67 (31.6%) use institutional repositories once a week. In addition, 30 (14.2%) of the respondents only use institutional repositories once in a month while 41 (19.3%) of the respondents reported that they have never make use of institutional repositories. This shows that the majority of the respondents make use of institutional repositories weekly followed by those who used it daily and weekly in that order. The mean score of all the positive responses is 3.33 which suggests a high frequency of use. This finding is in line with several similar studies while also contradicting other studies on the use of institutional repositories[1,2].

Table 4.3b Purpose of Institutional Repository Use among Academic Staff of Universities in Oyo and Osun State

Statements	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean
To ensure that my published material is easy to find	48 (22.6%)	126 (59.4%)	23 (10.8%)	15 (7.1%)	2.98
To make access to my works cheaper for others	97 (45.8%)	65 (30.7%)	45 (21.2%)	5 (2.4%)	3.20
depositing my work in the repository protects it from plagiarism	58 (27.4%)	94 (44.3%)	36 (17.0%)	24 (11.3%)	2.88
my scholarly work is disseminated more quickly	66 (31.1%)	103 (48.6%)	36 (17.0%)	7 (3.3%)	3.08
To gather information for personal research	74 (34.9%)	98 (46.2%)	31 (14.6%)	9 (4.2%)	3.12
For guidelines on how to write research/review articles	60 (28.3%)	108 (50.9%)	34 (16.0%)	10 (4.7%)	3.03
Weighted mean					**3.04**

Source: Fieldwork 2023

Table 4.3b presented data on the purpose of institutional repositories use among the respondents. The data shows that 22.6% of the respondents strongly agreed that they make use of institutional repositories to ensure that their published works are easy to find by information users. About 59% of the respondents also agreed to this purpose. However, 10.8% of the respondents disagreed while 7.1% strongly disagreed meaning that they are not so concerned about using institutional repositories to promote their research. This item has a mean score of 2.98 indicating that it is high among the purpose of using institutional repositories.

Similarly, 45.8% of the respondents strongly agreed that they use repositories to make access to their works cheaper for others, 30.7% also agreed to this while 21.2% of the respondents and 2.4% disagreed and strongly disagreed respectively. This item also has a mean score of 3.20. In addition, 27.4% strongly agreed that depositing their research works in institutional repositories protects it from plagiarism. About 44% agreed to this while 17% disagreed and 11.3% strongly disagreed respectively. On the average, the item has a mean score of 2.88 which makes it one of the important purposes of using institutional repositories. Another important purpose of using institutional repositories as shown in Table 4.3b is to ensure that scholarly works are disseminated more quickly. The responses showed that 31.1% of the respondents strongly agreed and 48.6% agreed to this statement. On the other hand, 17% disagreed and 3.3% strongly disagreed with the item. The mean score of 3.08 also shows that this is one of the important purposes of using institutional repositories.

In addition to using institutional repositories to disseminate research, the purpose of use also include; to carry out research. This is shown by the 34.9% of the respondents who strongly agreed and the 46.2% who agreed that they use institutional repositories to gather information for personal research. On the other hand, 14.6% of the

respondents disagreed while 4.2% strongly disagreed with the item. However, the item has a mean score of 3.12 which indicates that it is an important purpose. The same goes for using institutional repositories to find guidelines on how to write research/review articles. The responses shows that 28.3% strongly agreed and 50.9% agreed to the item while 16% disagreed and 4.7% strongly disagreed respectively. The mean score of 3.03 also shows that this purpose is one of the most important purpose of using institutional repositories.

Overall, the average mean of all the items comprising the purpose of using institutional repositories is 3.04 which means the combination of using institutional repositories to deposit, preserve and disseminate research as well as for conducting research are valid purpose of using institutional repositories. This result is unique because previous studies have reported low use of institutional repositories[2,3].

4.2.2: What is the level of awareness of institutional repositories among academic staff of universities in Oyo and Osun states?

Table 4.4: Awareness of Institutional Repositories among Academic Staff of Universities in Oyo and Osun States

Perception	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**	**Mean**
I have heard about institutional repositories	73 (34.4%)	118 (55.7%)	19 (9.0%)	02 (0.9%)	3.24
I have heard about institutional repositories but know nothing about it (R)	100 (47.2%)	64 (30.2%)	35 (16.5%)	13 (6.1%)	1.81
I have come across institutional repositories but know just a little about (R)	65 (30.7%)	89 (42.0%)	53 (25.0%)	5 (2.4%)	1.99
I have come across it and know quite a bit about it	88 (41.5%)	96 (45.3%)	23 (10.8%)	5 (2.4%)	3.26
Weighted mean					**2.58**
Comprehension	**Strongly**	**Agree**	**Disagree**	**Strongly**	**Mean**

	Agree			**Disagree**	
I am aware of the content of my university's IR	75 (35.4%)	95 (44.8%)	38 (17.9%)	4 (1.9%)	3.14
I am aware of my university's IR policy	52 (24.5%)	111 (52.4%)	42 (19.8%)	7 (3.3%)	2.98
I am aware of journal publishers' policy on OA	68 (32.1%)	89 (42.0%)	30 (14.2%)	25 (11.8%)	2.94
I am aware of the processes of depositing my work into IR	67 (31.6%)	105 (49.5%)	24 (11.3%)	16 (7.5%)	3.05
Weighted mean					**3.03**
Projection	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**	**Mean**
I would find institutional repositories useful in my career	52 (24.5%)	127 (59.9%)	29 (13.7%)	4 (1.9%)	3.07
Institutional repositories will provide me access to scholarly works easily	82 (38.7%)	94 (44.3%)	33 (15.6%)	3 (1.4%)	3.20
Using institutional repositories can boost the number of citations of my research work	51 (24.1%)	108 (50.9%)	42 (19.8%	11 (5.2%)	2.94
Using institutional repositories allow my students to find my research output in one place	70 (33.0%)	93 (43.9%)	30 (14.2%)	19 (9.0%)	3.01
Weighted mean					3.06
Aggregate Mean					**2.89**

Decision rule 1.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high

Source: Fieldwork 2023

Table 4.4 presents the data on the level of awareness of institutional repositories among academic staff. Awareness of institutional repositories was examined under three sub-metrics, namely; perception, comprehension, and projection. Under perception, the responses showed that 34.4% respondents strongly agreed and 55.7% respondents agreed that they have heard about institutional repositories. Only 9% disagreed and 0.9% strongly disagreed respectively. The statement also has a mean score of 3.24 which mean it is accepted as valid. However, majority of the respondents have heard about institutional repositories but know nothing about it. This is shown by the 47.2% and 30.2% of the respondents who strongly agreed and

agreed respectively. On the other hand, 16.5% of the respondents disagreed and 6.1% strongly disagreed indicating that they have heard about institutional repositories and know what it stands for. The item has a mean score of 1.81 which shows low level of awareness in that aspect. Similarly, majority of the respondents have come across institutional repositories but know just a little about them. This is supported by 30.7% of the respondents who strongly agreed and 42% who agreed with the statement. However, 25% disagreed and 2.4% strongly disagreed with the statement indicating that they have come across institutional repositories and know enough about them to make good use of institutional repositories. This statement however has a mean score of 1.99.

Furthermore, 41.5% of the respondents strongly agreed that they have come across institutional repositories and know quite a bit about them. In the same vein 45.3% agreed to the item. On the other hand, 10.8% of the respondents disagreed and 2.4% strongly disagreed. On the average, the item has a mean score of 3.26 which makes it a high factor in the perception of the respondents. Overall, the average mean score for the perception dimension of awareness is 2.58 which indicates a high level of positive perception.

The second dimension of awareness is comprehension which measures the understanding of the workings of institutional repositories among the respondents. On the contents of institutional repositories, 35.4% strongly agreed and 44.8% agreed respectively that they are aware of the content of their university's IR while 17.9% disagreed and 1.9% strongly disagreed respectively. This is shown in the mean score of 3.14. Similarly, 24.5% aware of the respondents strongly agreed that they are aware of their university's IR policy and 52.4% agreed to the same. On the other hand,

19.8% disagreed and 3.3% strongly disagreed indicating ignorance of the policies. This results in a mean score of 2.98 which is considered high on a 4-point scale.

In the same vein, 32.1% of the respondents strongly agreed and 42% agreed that they are aware of journal publishers' policy on open access publishing. On the other hand, 14.2% disagreed and 11.8% strongly disagreed to the statement. This statement has a mean score of 3.14. Also, 31.6% strongly agreed and 49.5% agreed that they are aware of the processes of depositing their research works into institutional repositories. On the contrary, 11.3% disagreed and 7.5% strongly disagreed which puts them in the minority. Consequently, the statement has a mean score of 3.05. Overall, the comprehension dimension of awareness has an average mean score of 3.03 indicating a high level of comprehension. This level of comprehension dovetails into the third dimension of awareness which is projection.

Projection as a dimension of awareness means the level of understanding of the respondents regarding the potential benefits or harms of using institutional repositories. The responses shows that 24.5% of the respondents strongly agreed and 59.9% agreed respectively that they would find institutional repositories useful in their careers. On the contrary, 13.7% disagreed and 1.9% strongly disagreed respectively. The response of the majority is reflected in the mean score of 3.07 which show high level of agreement on this statement. Furthermore, 38.7% of the respondents strongly agreed and 44.3% agreed respectively that institutional repositories will provide them access to scholarly works easily. Those who disagreed are 15.6% while 1.4% of the respondents strongly disagreed with this statement. The mean score of 3.20 indicate a high level of agreement with this statement.

In addition, 24.1% of the respondents strongly agreed and 50.9% agreed respectively that using institutional repositories can boost the number of citations of their research

works while 19.8% disagreed and 5.2% strongly disagreed respectively. On average, the statement has a mean score of 2.94 which is considered high. In the same vein, 33% of the respondents strongly agreed and 43.9% agreed respectively that using institutional repositories allow students to find their research output in one place. On average, the statement that using institutional repositories allow students to find their research output in one place has a mean score of 3.01. Overall, the average mean score of projection as a dimension of awareness of institutional repositories among the respondents is 3.06.

To answer the research question on the level of awareness of institutional repository among the respondent, the aggregate mean score of the three dimensions is considered. This is perception (2.58), comprehension (3.03), and projection (3.06). Aggregate mean score is 2.89 indicating a high level of multidimensional awareness of institutional repos among the respondents. This result is also unique because previous studies have merely focused only on one dimension of awareness which is perception[5,6].

4.2.3: What is the level of anchor factors (computer self-efficacy, computer anxiety and computer playfulness) among academic staff of universities in Oyo and Osun states?

Table 4.5: Level of Anchor Factors (computer self-efficacy, computer anxiety and computer playfulness) among Academic Staff of Universities in Oyo and Osun states

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean
Computer Self-Efficacy					
I am able to use institutional repositories if there is no one around to show me how to use them	56 (26.4%)	128 (60.4%)	24 (11.3%)	4 (1.9%)	3.11
I feel comfortable using institutional repositories on my own	48 (22.6%)	112 (52.8%)	45 (21.2%)	7 (3.3%)	2.95
I can confidently download and save files from institutional repositories when needed	91 (42.9%)	93 (43.9%)	24 (11.3%)	4 (1.9%)	3.28
I can confidently deposit my scholarly works into our university institutional repository	61 (28.8%)	103 (48.6%)	40 (18.9%)	8 (3.8%)	3.02
I can confidently retrieve scholarly works from our university institutional repository	73 (34.4%)	93 (43.9%)	43 (20.3%)	3 (1.4%)	3.11
I could use institutional repositories if there was no one around to tell me what to do	63 (29.7%)	128 (60.4%)	18 (8.5%)	3 (1.4%)	3.18
Weighted mean					**3.11**

Source: Fieldwork, 2023

Computer Playfulness	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean
I am playful when using institutional repositories	68 (32.1%)	84 (39.6%)	50 (23.6%)	10 (4.7%)	2.99
My using institutional repositories is spontaneous	75 (35.4%)	88 (41.5%)	43 (20.3%)	6 (2.8%)	3.09
I am creative in using institutional repositories	81 (38.2%)	101 (47.6%)	26 (12.3%)	4 (1.9%)	3.22
I am original in using institutional repositories	55 (25.9%)	112 (52.8%)	42 (19.8%)	3 (1.4%)	3.03
I am imaginative when using institutional repositories	74 (34.9%)	106 (50.0%)	32 (15.1%)	--	3.20
I am inventive when using institutional repositories	73 (34.4%)	111 (52.4%)	24 (11.3%)	4 (1.9%)	3.19
Weighted mean					3.12
Computer Anxiety	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**	**Mean**
I do not feel nervous about using institutional repositories	52 (24.5%)	101 (47.6%)	51 (24.1%)	8 (3.8%)	2.93
I am not skeptical that my work could be plagiarized if deposited in an institutional repository	96 (45.3%)	87 (41.0%)	23 (10.8%)	6 (2.8%)	3.29
I do not hesitate to use institutional repositories for fear of making mistakes I cannot correct	58 (27.4%)	116 (54.7%)	23 (10.8%)	15 (7.1%)	3.02
The security of institutional repositories does not worry me	85 (40.1%)	72 (34.0%)	37 (17.5%)	18 (8.5%)	3.06
Using institutional repositories does not scares me	55 (25.9%)	96 (45.3%)	47 (22.2%)	14 (6.6%)	2.91
Using institutional repositories does not makes me uncomfortable	72 (34.0%)	107 (50.5%)	20 (9.4%)	13 (6.1%)	3.12
Weighted mean					**3.06**
Aggregate Mean					

Decision rule 1.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high

Source: Fieldwork 2023

Table 4.5 presents data on the anchor factors (computer self-efficacy, computer anxiety and computer playfulness). According to results in Table 4.5, the response on the aspect of computer self-efficacy shows that 26.4%of respondents strongly agree that they are able to use institutional repositories if there is no one around to show them how, 60.4% agree, 11.3%disagree, and 1.9% strongly disagree with the statement. On average, the statement that respondents can use institutional repositories without supervision has a mean of 3.11. Results also indicated that 22.6% of respondents strongly agree that they feel comfortable using institutional repositories on their own, 52.8% agree, 21.2% disagree, and 3.3% strongly disagree. On average, items that respondent's feel comfortable using institutional repositories on their own has a mean of 2.95. In addition, 42.9% of the respondents strongly agree that they can confidently download and save files from institutional repositories when needed, 43.9% agree to this statement, 11.3 % disagree, and 1.9% strongly disagree. On average, the statement that can confidently download and save files from institutional repositories when needed has a mean of 3.28.

Furthermore, 28.8% of the respondents strongly agree that they can confidently deposit their scholarly works into university institutional repository, 48.6% agree, 18.9%% disagree, while 3.8% of the respondents strongly disagree with the statement. On average, the statement has a mean of 3.02. In the same vein, 34.4% of respondents strongly agree that they can confidently retrieve scholarly works from institutional repository, 43.9% agree, 20.3% disagree, and 1.4% strongly disagree. On average, the statement has a mean of 3.11. Also, 29.7% of the respondents strongly agree that they can use institutional repositories if there was no one around to tell them what to do,

60.4% agree while 8.5% and 1.4% of the respondents disagree, and strongly disagree with the statement respectively. On average, the statement has a mean of 3.18.

Overall given the average mean for computer self-efficacy is 3.11 which suggests that the majority of university academic staff in Oyo and Osun State have a high level of computer self-efficacy. The mean score shows that the respondents rate their own level of computer self-efficacy higher than average.

The second anchor factor considered in this study is computer playfulness. According to results in Table 4.5. 32.1% of respondents strongly agree that they are playful when using institutional repositories, 39.6% agree, 23.6% disagree, and 4.7% strongly disagree with the statement. On average, the respondents indicating that they are playful when using institutional repositories has a mean of 2.99. Results also indicated that 35.4% of respondents strongly agree that their using institutional repositories is spontaneous, 41.5% agree, 20.3% disagree, and 2.8% strongly disagree with the statement. On average, the respondents indicating that their using institutional repositories is spontaneous has a mean of 3.09. In addition, 38.2% of the respondents strongly agree that are creative in using institutional repositories, 47.6% agree. On the other hand, 12.3% of the respondents disagree, and 1.9% strongly disagree with the statement. On average, statement has a mean of 3.22. Also, 25.9% of the respondents strongly agree that they are original in using institutional repositories, 52.8% agree, 19.8% disagree, and 1.4% strongly disagree. On average, the statement that the respondents are original in using institutional repositories has a mean of 3.03. Results also indicated that 34.9% of respondents strongly agree that they are imaginative when using institutional repositories, 50% of the respondents also agree. Meanwhile, 15.1% disagree with the statement. On average, the statement that respondents are imaginative when using institutional repositories has a mean of 3.20. Furthermore,

34.4% of the respondents strongly agree that they are inventive when using institutional repositories, 52.4% agree, 11.3% disagree, and 1.9% strongly disagree. On average, the statement that they are inventive when using institutional repositories has a mean of 3.19. Overall, the average mean score of all the items under computer playfulness is 3.12 which indicates a level of computer playfulness among the majority of university academic staff in Oyo and Osun State.

On the third anchor factor which is computer anxiety, the data presented also indicated that 24.5% of respondents strongly agree that they do not feel nervous about using institutional repositories, 47.6% agree while 24.1% disagree, and 3.8% strongly disagree to the statement. On average, the statement that they do not feel nervous about using institutional repositories has a mean score of 2.93. Results also indicated that 45.3% of the respondents strongly agree that are not skeptical about their work could be plagiarized if deposited in an institutional repository, 41% also agreed to this while 10.8% disagree, and 2.8% strongly disagree. On average, the statement that respondents are not concerned about their work being plagiarized if deposited in an institutional repository has a mean of 3.29. In addition to this, 27.4% and 54.7% of the respondents strongly agree and agreed respectively that they do not hesitate to use institutional repositories for fear of making mistakes they cannot correct. On the other hand, 10.8% respondents disagreed while 7.1%

strongly disagree with the statement. On average, the responses on the respondents hesitating to use institutional repositories for fear of making mistakes they cannot correct has a mean of 3.02. Similarly, 40.1% of the respondents strongly agree that the security of institutional repositories does not worry them, 34% agree, 17.5% disagree, and 8.5% strongly disagree to the statement. On average, the statement has a mean score of 3.06. In addition, 25.9% and 45.3% of the respondents strongly agreed and

agreed respective that making use of institutional repositories does not scare them. On the other hand, 22.2% of the respondents disagreed while 6.6% strongly disagreed leading to a mean score of 2.91 indicating a high level of lack of fear among the respondents. In the same vein, 34% of the respondents strongly agree that using institutional repositories does not make them uncomfortable, 50.5% also agreed to this while 9.4% disagree, and 6/1 % strongly disagree. On average, the statement that institutional repositories do not makes them uncomfortable has a mean of 3.12.

Overall given the weighted mean for computer anxiety among the respondents is 3.06 and this suggest that majority of university academic staff in Oyo and Osun State have low level of computer anxiety. The data suggests those who have computer anxiety are very low compared to those who do not have. To answer the research question on the level of anchor factors among the respondents, the weighted of each dimension is aggregated to obtain an aggregate mean score of 3.10 indicating a high level of anchor factors among the respondents. These results indicate an improvement in the anchor factor of academic staff as previous studies have indicated low level of anchor factors, especially among senior academics[5,67].

4.3 Presentation of Hypotheses

4.3.1 There will be no significant influence of awareness (perception, comprehension and projection) on the use of institutional repositories by academic staff of universities in Oyo and Osun states.

Table 4.6a-c: Influence of Awareness on the Use of Institutional Repositories by Academic Staff of Universities in Oyo and Osun States.

Model Summary

Model	R	R Square	Adjusted R	Std. Error of the

			Square	Estimate
1	.390[a]	.152	.148	.54128

a. Predictors: (Constant), Awareness of IR

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.058	1	11.058	37.743	.000[b]
	Residual	61.528	210	.293		
	Total	72.586	211			

a. Dependent Variable: Use of IR

b. Predictors: (Constant), Awareness of IR

Coefficients[a]

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	1.436	.271		5.297	.000
Awareness of IR	.036	.006	.390	6.144	.000

a. Dependent Variable: Use of IR

Table 4.6a-c presents the results of the linear regression analysis for the influence of awareness on the use of institutional repositories by university academic staff in Oyo and Osun State of Nigeria. From the results in Table 4.6a, awareness of institutional repositories has a positive correlation with the use of institutional repositories by university academic staff in Oyo and Osun State of Nigeria, Nigeria ($R = 0.390$, $p<0.05$). The coefficient of determination (Adj. R^2) of 0. 152 shows that awareness of institutional repositories explains 15.2% of the use of institutional repositories by university academic staff in Oyo and Osun State of Nigeria, while the remaining 84.2% variation is explained by other variables not investigated in this study.

Furthermore, Table 4.6b presents the results of ANOVA of regression test which revealed that awareness of institutional repositories has a significant influence on the use of institutional repositories by university academic staff in Oyo and Osun State of Nigeria. This can be explained by the F-value (37.743) and low p-value (0.000) which is statistically significant at 95% confidence interval. Hence, the result posited that the use of institutional repositories is influenced by the level of awareness of institutional repositories among the respondents.

In addition, the results of regression coefficients in table 4.6c, revealed that at 95% confidence level, a unit change in awareness of institutional repositories will lead to a 0.036 increase in the use of institutional repositories by university academic staff in Oyo and Osun State of Nigeria, given that all other factors are held constant. On the strength of this result (Adj. R^2 = 0.152, $F(1, 210)$= 37.743, p= 0.000), the null hypothesis one ($H_0 1$) which states that there will be no significant influence of awareness (perception, comprehension and projection) on the use of institutional repositories by academic staff of universities in Oyo and Osun states is thus rejected.

4.3.2 There will be no significant influence of anchor factors (computer self-efficacy, computer playfulness and computer anxiety) on the use of institutional repositories by academic staff of universities in Oyo and Osun states.

Table 4.7a-C: Influence of Anchor Factors (Computer Self-Efficacy, Computer Playfulness and Computer Anxiety) on the Use of Institutional Repositories by Academic Staff of Universities In Oyo And Osun States

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.146[a]	.021	.017	4.07151

a. Predictors: (Constant), Anchor Factors

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	75.514	1	75.514	4.555	.034[b]
	Residual	3481.203	210	16.577		
	Total	3556.717	211			

a. Dependent Variable: Use of IR

b. Predictors: (Constant), Anchor Factors

Coefficients[a]

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	16.183	2.555		6.334	.000
Anchor Factors	.292	.137	.146	2.134	.034

a. Dependent Variable: Use of IR

Table 4.7a-c presents the results of the linear regression analysis for the influence of anchor factors on the use of institutional repositories by university academic staff in Oyo and Osun State of Nigeria. From the results in Table 4.7a, anchor factors has a positive correlation with the use of institutional repositories by university academic staff in Oyo and Osun State of Nigeria ($R = 0.146$, $p<0.05$). The coefficient of determination (Adj. R^2) of 0.021 shows that anchor factors explain 2.1% of the use of institutional repositories by university academic staff in Oyo and Osun State of Nigeria, while the remaining 87.9% variation is explained by other variables not investigated in this study.

Furthermore, Table 4.6b presents the results of ANOVA of regression test which revealed that anchor factors have a significant influence on the use of institutional repositories by university academic staff in Oyo and Osun State of Nigeria. This can

be explained by the F-value (4.555) and low p-value (0.034) which is statistically significant at 95% confidence interval. Hence, the result posited that the anchor factors play some roles in the use of institutional repositories among the university academic staff in Oyo and Osun State of Nigeria.

In addition, the results of regression coefficients in table 4.6c, revealed that at 95% confidence level, a unit change in anchor factors will lead to a 0.292 increase in the use of institutional repositories by university academic staff in Oyo and Osun State of Nigeria, given that all other factors are held constant. On the strength of this result (Adj. R^2 = 0.164, $F(1, 210)$= 4.555, p= 0.000), the null hypothesis one ($H_0 2$) which states that there will be no significant influence of anchor factors on the use of institutional repositories by academic staff of universities in Oyo and Osun states is thus rejected.

4.3.3 There will be no combined influence of awareness and anchor factors on the use of institutional repositories by academic staff of universities in Oyo and Osun states

Table 4.8a-c: Combined Influence of Awareness and Anchor Factors on the Use of Institutional Repositories by Academic Staff of Universities in Oyo and Osun states

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.402[a]	.162	.154	3.77636

a. Predictors: (Constant), Awareness of IR , Anchor Factors

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.

1	Regression	576.188	2	288.094	20.202	.000[b]
	Residual	2980.529	209	14.261		
	Total	3556.717	211			

a. Dependent Variable: Use of IR

b. Predictors: (Constant), Awareness of IR , Anchor Factors

Coefficients[a]

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	12.472	2.451		5.088	.000
Anchor Factors	-.241	.156	-.120	-1.551	.122
Awareness of IR	.295	.050	.460	5.925	.000

a. Dependent Variable: Use of IR

Table 4.8a-c presents the results of the multiple regression analysis for the combined influence of awareness and anchor factors on the use of institutional repositories by academic staff of universities in Oyo and Osun State of Nigeria. From the results in Table 4.8a, the combination of awareness and anchor factors have a positive correlation with the use of institutional repositories by academic staff of universities in Oyo and Osun State of Nigeria ($R = 0.42$, $p<0.05$). The coefficient of determination (Adj. R^2) of 0.162 shows that the combination of awareness and anchor factors explains 16.2% of the use of institutional repositories by academic staff of universities in Oyo and Osun State of Nigeria, while the remaining 83.4% variation in the use of institutional repositories is explained by other variables not investigated in this study.

Furthermore, Table 4.8b presents the results of ANOVA of regression test which revealed that awareness and anchor factors have a significant influence on the use of institutional repositories by academic staff of universities in Oyo and Osun State of

Nigeria. This can be explained by the F-value (20.202) and low p-value (0.000) which is statistically significant at 95% confidence interval. Hence, the result posited that awareness and anchor factors play significant roles in the use of institutional repositories among the university academic staff in Oyo and Osun State of Nigeria.

However, the results of regression coefficients in table 4.8c, revealed that at 95% confidence level, a unit change in awareness of institutional repositories among academic staff of universities in Oyo and Osun State of Nigeria will lead to a 0.292 change in the use of institutional repositories while, a unit change in anchor factors will lead to a -0.241 change in the use of institutional repositories, given that all other factors are held constant. Out of the two independent variables examined, awareness of institutional repositories has a significant combined influence on the use of institutional repositories among academic staff of universities in Oyo and Osun State of Nigeria while anchor factors do not have a significant combined influence. This shows that when lecturers have adequate level awareness of institutional repositories, anchor factors may not be a significant issue. It is on the strength of this result (Adj. R2 = 0.162, F(2,209)= 20.202, p= 0.000), that the null hypothesis three (H_0^3) which states that there will be no combined influence of awareness and anchor factors on the use of institutional repositories by academic staff of universities in Oyo and Osun states is thus rejected.

4.4 Discussion of Findings

The aim of the study is to determine the influence of awareness and anchor factors on the use of institutional repositories by academic staff of universities in Oyo and Osun State of Nigeria. To achieve this aim, the researcher raised three research questions

and hypotheses respectively. The first research question is on the level of use of institutional repositories among the respondents.

The study found that both the frequency and purpose of using institutional repositories among the respondents combined to make a high level of institutional repositories use among the respondents. This finding is in line with several similar studies while also contradicting other studies on the use of institutional repositories. For instance, a study conducted on the use of institutional repository for self-archiving by lecturers in Africa found that many of them do not share or disseminate their research after it has been published through the peer-review system because, in most cases, they are unaware of the benefits of informal networks or how to use them to promote their study[1]. Although many academic libraries across the world have successfully implemented IRs, several studies indicate scholar's reluctance to archive their work in IRs. In fact, the current IR deposition estimates indicate that only 15 to 30% of eligible scholars and researchers deposit their work in institutional repositories[2]

There are however findings that agrees with the current study. A study conducted in Ghana revealed that the majority of the respondents, all of whom are lecturers, use the institutional repository for depositing and retrieving scholarly resources while others use the repository for information retrieval only[3]. Another study conducted in Nigeria examined the use of institutional repositories in two universities in Nigeria focusing on Covenant University and University of Ilorin, two universities with well-resourced institutional repositories, found that there is a higher level of IR resources at Covenant University while the University of Ilorin recorded low usage by lecturers. The frequency of use of the repositories was also found to be different. It was found that the frequency of usage of institutional repository is higher in Covenant University when compared to UNILORIN[4]. Similarly, another study Nigerian scholar reported

that most of the lecturers in Nigerian universities knew about IRs, and they used them frequently for information retrieval. In addition, most of the lecturers had shown preference for mediated archiving probably due to challenges faced in self-archiving. Regarding the purpose of use, it was reported that the lecturers use information resources to produce lecture notes and research works[5]. The implication of this is that the level of institutional repository use among academic staff may be down to institutional factors peculiar to academic institutions and personal factors peculiars to the individual users themselves or a combination of both as it is obtainable in a given institution or environment. One of these factors may be awareness.

The second research question of this study examined the level of awareness of institutional repositories among the respondents. The study found a high level of awareness among the respondents. Most importantly, the awareness is multidimensional as it covers the perception, comprehension and projection of the relevance of institutional repositories. The findings showed that the respondents scored high on all of the dimensions. There are several studies that support this findings although most of the studies focused on one or two dimensions to the exclusion of others. For instance, researchers in the south-west of Nigeria survey the understanding of respondents regarding the benefits of using institutional repositories such a wider visibility for scholarly works; Wider communication of research outcome; increased personal prestige in one's field; increase institutional prestige; protection of research from plagiarism; increase the citation impact; reduce exploitations by commercial publishers; providing free access to electronic theses, dissertations and scholarly articles for researcher, as well as faster and wider dissemination of knowledge. The study found that majority of the lecturers agree with these benefits[6].

Another study conducted by researchers in Nigeria to examine the use of institutional repositories among university lecturers in the country also found that majority of the respondents were aware of the existence of; the benefits of using IRs; and the content expected to be in the IR in their universities. However, majority of the lecturers were not aware of; university IR policy, publishers' policy on open access or the processes of depositing research into the in IR. As a result, while the researchers reported that awareness is high, the fact that knowing how to deposit information resources into the institutional repository is the lowest and that lecturers are not fully aware of the policies guiding the use of IR shows that the level of awareness is still low[7].

In addition, researchers who examined the influence of awareness on the usage of repository software (DRS in India and found a high level of awareness of DSpace and Greenstone digital library software among the respondents indicating that academic staff are often aware of more than one types of institutional repositories[8]. This shows that some academic staff are avid users of information systems such as institutional repositories and they have developed knowledge about several types of information systems. However, there are still a significant number of academic staff who are unaware or lack the required level of awareness about institutional repositories.

A study conducted in Texas to assess the degree of awareness on institutional repository at Texas A&M University (TAMU) revealed that the level of awareness was quite low. The result showed that only a quarter of the respondents surveyed were aware of the existence of the institutional repository, and only a few had submitted, at least, published research to the repository[9]. Another study conducted in Canada also reported that majority of the lecturers in the country were unaware of the institutional repository in their institutions and as a result, many of the lecturers did not submit

their research to the repositories and few of them use the available resources in the institutional repositories[10]. The seeming lack of awareness and its influence on the use of institutional repositories in developed nations can however be excused on the availability of plethora of databases and ability of the institutions to subscribe to a large number of journals in each field. This is not so in Africa and other developing countries. It would be expected that information users in countries such as Nigeria would make large scale use of institutional repositories. However, available literature also suggests that awareness is a significant factor in the use of institutional repositories in these countries as well.

The third research question is focused on the level of anchor factors among the respondents. The anchor factors considered in this study include, computer self-efficacy, computer playfulness, and computer anxiety. The study found a high level of self-efficacy, computer playfulness, and low level of computer anxiety among the respondents. This is contrary to findings of related studies that have been conducted in Nigeria and elsewhere. For instance, a previous study showed lecturers in Nigerian Universities possess low level of computer self-efficacy which often affected their use of information systems such as institutional repositories[11].

However, other studies support the findings of the current study. A related study on computer self-efficacy found that the outbreak of the COvid-19 pandemic has forced many professionals to make use of computers and other related devices. As a result, the perceived computer self-efficacy among professionals such as academic staff of universities due to regular and sustained interaction with computers would naturally be on the rise[12]. The study further suggested that computer playfulness can help lecturers attain computer self-efficacy when there is a sudden need to adopt a new technology

Computer playfulness is however not something common to many academic staff. This is indicated in a study which found that only one in five lecturers demonstrated computer playfulness with the rest having computer anxiety. Specifically, it was found that lecturers are often mildly anxious or very anxious whenever they need to the repository. This affected their ability to use various office technology and ultimately affected their job performance[13]. In the same vein, a study found that even students often have a significant level of computer anxiety. The study found that the respondents are usually tense, feel anxious and, worried about making mistakes whenever they had to use the various information technology[14]. In view of this, the high level of anchor factors recorded in this study is either a result of progress made or an innocent overrating of skills among the respondents. The main focus of creating awareness and developing anchor factors is to achieve a specific purpose or a range of purposes. In this case, the focus is on whether these two can contribute to a more effective use of institutional repositories.

The first hypothesis of this study on the influence of awareness on the use of institutional repositories. The finding shows that awareness has a significant influence on the use of institutional repositories among academic staff of universities in Oyo and Osun states. The finding indicates that, the more fully aware users are about institutional repositories, the more likely they are to make use of it. This finding agrees with a similar study conducted in Nigeria in which the analysis showed that majority of the respondents reported that they are aware of the existence of institutional repository. In addition, it was shown that a significant part of the respondent also understands the benefits in the use of institutional repository. It was also found that more than half of the respondent claimed to be familiar with the content of their universities' IR., aware of their universities' IR policy, and the

relevance copyright issues relating to open access publishing[15]. Another study conducted by researchers in Nigeria to examine the use of institutional repositories among university lecturers in the country also found that majority of the respondents were aware of the existence of; the benefits of using IRs; and the content expected to be in the IR in their universities. However, majority of the lecturers were not aware of; university IR policy, publishers' policy on open access or the processes of depositing research into the in IR. As a result, while the researchers reported that awareness is high, the fact that knowing how to deposit information resources into the institutional repository is the lowest and that lecturers are not fully aware of the policies guiding the use of IR shows that the level of awareness is still low. This is reflected in the use of IR among the lecturers. The study found that, although the lecturers use the institutional repository to access published articles and conference papers, they do not access the repository regularly. The study also found that the use of institutional repository for self-archiving is very low. Furthermore. majority of the lecturers only deposited materials once or twice in a year[8].

This is also supported by a study conducted in India in which researchers found that a higher level of awareness such as comprehension and projection achieved through participation in workshops/seminars have an impact on the use of institutional repositories[16]. In the same vein, researchers in Kenya found that there is low level of user awareness about institutional repositories in their institutions which means that majority of the lecturers were simply informed about the existence of the institutional repository (perception) without in depth training on the use of institutional repositories and continuous advocacy on the use of institutional repositories to create higher level of awareness (i.e; comprehension and projection). This low level of awareness was reported to affect the use of institutional repository as majority of the

librarians interviewed reported that content recruitment for the institutional repository is a big challenge as they always find it difficult to convince researchers to deposit their research in the repositories[17].

Similarly, researchers in Tanzania found that majority of the lecturers were aware of the existence of IRs in their universities. Furthermore, it was found that majority of the lecturers were aware of the concept of IR, the contents to be deposited in the IR, benefits of IR. However, only a few of the lecturers were aware of the processes involved in self-archiving[18]. The study concluded that the lack of awareness of self-archiving process is a barrier to the use of institutional repositories among the lecturers. Another variable that can influence the use of institutional repositories is anchor factors.

The second hypothesis examined the influence of anchor factors on the use of institutional repositories among the respondents. The finding shows that anchors factors significantly predicts the use of institutional repositories among academic staff of universities in Oyo and Osun states. This finding aligns with some of the findings of studies that have been conducted by previous researchers. Researchers in Nigeria conducted a similar study to investigate the factors affecting perceived ease of using institutional repositories. The findings of the study showed that indicates that, anchor factors such as computer self-efficacy, computer anxiety and computer has a significant effect on the perceived ease of use and eventual use of institutional repositories in the selected institutions[19].

In a related study, researchers in Nigeria found that the computer self-efficacy was one of the significant factors that affect the use of electronic library resources. This finding led the researcher to suggest that, in order to improve the usage of electronic

library resources, library administration in the tertiary institution should take respondents' computer self-efficacy into account[20]. Another study also found that computer self-efficacy, one of the anchor factors has significant influence on the use of electronic information retrieved from various sources which included institutional repositories. It was shown that three dimensions of computer self-efficacy tested in the study such as proficiency in computer use, confidence in information retrieval skills and self-appraisal on the use of information systems such as institutional repositories combined together to represent the overall factors affecting the use of e-resources by the respondents[21].

All the anchor factors are closely linked which indicates that low computer self-efficacy will also affect others such as computer playfulness and computer anxiety. This is supported by researcher from Malaysia who examined how the role of anchor factors on the efficient use of computers systems among employees in the Malaysian public sector. The study found that only a fifth of the respondent demonstrated computer playfulness with others having computer anxiety. This affected their ability to use various office technology and ultimately affected their job performance[13]. This study show that computer playfulness is related to both computer self-efficacy and computer anxiety. Computer playfulness can breed a sense of computer self-efficacy and eliminate computer anxiety. This means that computer playfulness is the opposite of computer anxiety.

Additionally, researchers from United Arab Emirates (UAE) found that computer self-efficacy, enjoyment, and computer playfulness all have a strong beneficial influence on e-learning system perceived ease of use. These findings imply that when information users have enough computer abilities and a favorable disposition to connect spontaneously with the e-learning system, the system's effectiveness

increases significantly. The findings also demonstrated that pleasure and accessibility had a considerable beneficial influence on e-learning systems' perceived utility[22].

The third hypothesis of the study examined the combined influence of awareness and anchor factors on the use of institutional repositories among the respondents. The finding shows that, while the combination of the variables has a significant influence on the use of institutional repositories, only awareness has a significant relative influence on the use of institutional repositories while anchor factors does not have a significant influence. The implication of this is that anchor factor may not be important as a predictor of institutional repository use in the face of proper awareness. Once academic staff are properly educated about the usefulness of institutional repositories, they would be will be to make the necessary effort to use them even when they lack the basic skills. This is supported by recent study revealed that there was no significant relationship between the students' computer self-efficacy skills and their attitude towards e-learning platforms[23]. In the same vein, a study conducted among lecturers from selected universities in Nigeria also found that awareness and adjustment factors were stronger predictor of institutional repositories use than anchor factors[24]. The import of this is that institutional repositories are great tool for researchers and academic staff so, not even the lack computer skills can totally stop them from using them after they have become convinced of its usefulness.

This is shown in a study which reported that most of the lecturers who lack the necessary knowledge and skills for self-archiving were willing to seek the help of librarians and colleagues to get their work into institutional repositories in order to enjoy the benefits[5].

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Chapter Five

Conclusion

This chapter provides the concluding part of the study. It is organised under various subheadings such as summary of findings, conclusion, recommendations, contribution to knowledge and suggestions for further studies.

5.1 Summary of Findings

The major findings of this study are summarized as follows.

i. The use of institutional repositories among academic staff of universities in Oyo and Osun state, in term of frequency and purpose of use, is high. However, there is still a significant number of academic staff who have never used institutional repositories and those who rarely deposit their preprints and other scholarly works in institutional repositories.

ii. The level of awareness of institutional repositories among academic staff of universities in Oyo and Osun state is high. Majority of them has high level of positive perception, comprehension and projection about the relevance of institutional repositories to their works. However, the findings shows that some academic staff are yet to hear about institutional repositories while some have heard about them but know nothing about how they work.

iii. The finding indicates a high level of anchor factors among the respondents with majority indicating high level computer self-efficacy and computer playfulness while also reporting low level of computer anxiety.

iv. The test of the first hypothesis revealed that awareness of institutional repositories has a significant effect on their use by academic staff of universities.

v. The test of the second hypotheses also shows that anchors factors significantly predict the use of institutional repositories among academic staff of universities in Oyo and Osun states

vi. However, the test of the third hypothesis shows that, while the combination of the two variables has a significant influence on the use of institutional repositories, only awareness has a significant relative influence on the use of institutional repositories while anchor factors does not have a significant influence

5.2 Conclusion

Research and scholarly activities that constitute the major preoccupation of academic staff in universities thrive on the availability and accessibility of quality information resources. In the same vein, the research output of scholars need to be disseminated as quickly and widely as possible. Effective use of institutional repositories, both as tool for scholarly communication and as information systems provide a holistic solution to achieve these objectives. In an era where Nigerian lecturers have better access to research conducted abroad than local research due to poor scholarly communication infrastructure, institutional repositories offer an opportunity to promote local content in research and so its use should be widely promoted. It is therefore important that academic staff as key stakeholders in the development and sustenance of institutional repositories should be made to understand everything related to the relevance, workings and advantages of institutional repositories so that they can be part of the efforts not only to promote local research outputs but also to enhance the quality and impact of research conducted in Nigeria.

5.3 Recommendations

Based on the findings as presented in this chapter and the conclusion reached in this study, the following recommendations are considered relevant;

1. Although there seems to be a widespread use of institutional repositories among academic staff of universities, the relatively large numbers of infrequent users and those who have never used them demand that more institutional repositories should be developed and the existing ones made more robust to meet the information needs of target users.
2. The fact that perception of institutional repositories has the lowest score among the dimensions of awareness indicates a need for more publicity and marketing activities on the part of universities that have developed institutional repositories to ensure that their staff do not depend on second hand information about institutional repositories.
3. There is a need for continuous task-specific skills development training for academic staff pertaining to the use of institutional repositories. This is important because each institutional repository is unique and often require adequate level of digital skills to ensure effective use.
4. Given the significance of awareness to the use of institutional repositories by academic staff of universities, it is important to enrich any awareness programme with monitoring and evaluation procedures to ensure that they continue to contribute to improved use of institutional repositories.
5. Academic staff in universities should also take control of their personal development by critical evaluating their individual digital capabilities and identify skill gaps to be filled especially in relation to the use of digital information systems such as institutional repositories.

6. Librarians and Information professionals should work closely with academic staff in the areas of task-oriented skill acquisition with a view to ensure that academic staff develop skills that can help them make better use of intuitional repositories.

5.4 Contribution to Knowledge

This study has added to the existing knowledge conceptually, theoretically and empirically. The study has filled a gap in literature created by lack of empirical studies on the combined role of awareness and anchor factors on the use of institutional repositories. Most importantly, the study explored a multidimensional approach to the study of awareness of institutional repositories which looks beyond sampling knowing that institutional repositories exist to an understanding of their uses and benefits.

From the theoretical point of view, the study has integrated the Situational Awareness Theory, which was mostly used in the aviation and military sectors to the study of institutional repositories. The validation of this theory in the field of library and information science has opened the door for other researchers to apply it in their studies.

The study has also provided current empirical data regarding the use of institutional repositories among universities in Oyo and Osun state. The empirical data provided current insight into the use of institutional repositories which is an update of the existing data available on the subject

5.5 Suggested Areas for Further Research

The study examined the influence of awareness and anchor factors on the use of institutional repositories among academic staff focusing on Universities in Oyo and Osun states. The study has its limitation as it only selected two universities from each state. The following areas should therefore be explored by subsequent researchers;

Influence of awareness and anchor factors on the use of institutional repositories by postgraduate students.

Comparative analysis on the use of institutional repositories among lecturers in Nigerian public and private universities.

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Appendix I

Questionnaire

Lead City University Ibadan
Faculty of Communication and Information Science
Department of Information Management

Questionnaire on the Influence of Awareness and Anchor Factors on the Use of Institutional Repositories by University Lecturers in Oyo and Osun State.

(QIAAUIR)

Dear Respondents,

This questionnaire is designed to collect data on the Influence of Awareness and Anchor Factors on the Use of Institutional Repositories by University Lecturers. Your response to the questions and statements in this questionnaire is high important to the success of the study. I therefore seek your indulgence to fill the questionnaire as accurately as possible. I assure you that your responses will be treated with the utmost confidentiality and used only for research purposes.

Thank you.

Section A: Demographic information:

1. Name of institution:…….
2. Gender Male [ ] Female [ ]
3. Rank: Chief Lecturer [ ] Principal Lecturer [ ] Senior Lecturer [ ] Lecturer 1 [ ] Lecturer II [ ] Assistant Lecturer [ ]
4. Age 25-29[ ], 30-34 [ ] 26-30 [ ], 31-35 [ ], 36-40 [ ], 40-44 [ ]45 and above [ ]
5. Work Experience: 1- 5 [ ] 6– 10[ ] 11 15 [ ]16 – 20[ ] 21 -25 [ ]above 25 [ ]

Section B (i): Frequency of Use of Institutional Repositories

Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
I make use of institution repositories daily				
I make use of institution repositories twice a week				
I make use of institution repositories weekly				
I make use of institution repositories at least once a month				
I have never use of an institution				

repository				

Section B (ii): Purposes of use of Institutional Repositories

Instruction: Please respond to the following statements as they apply to you

Key: SA=strongly agree, A=Agree, D=Disagree, SD=strongly disagree).

	For what purposes do you make use of Institutional Repositories	**SA**	**A**	**D**	**SD**
1.	To ensure that my published material is easy to find				
2.	To make access to my works cheaper for others				
3.	depositing my work in the repository protects it from plagiarism				
4.	my scholarly work is disseminated more quickly				
5.	To gather information for personal research				
6.	For guidelines on how to write research/review articles				

Section C: Awareness of Institutional Repositories

Instruction: Please respond to the following statements as they apply to you

Key: SA=strongly agree, A=Agree, D=Disagree, SD=strongly disagree).

S/N	**Perception**	**SA**	**A**	**D**	**SD**
1.	I have heard about institutional repositories				
2.	I have heard about institutional repositories but know nothing about it				
3.	I have come across institutional repositories but know just a little about				
4.	I have come across it and know quite a bit about it				
	Comprehension				
5.	I am aware of the content of my university's IR				
6.	I am aware of my university's IR policy				
7.	I am aware of journal publishers' policy on OA				
8.	I am aware of the processes of depositing my work into IR				
	Projection				
9.	I would find institutional repositories useful in my career				
10.	Institutional repositories will provide me access to scholarly works easily				
11.	Using institutional repositories can boost the number of citations of my research work				
12.	Using institutional repositories allow my students to find my research output in one place				

Section D : Anchor Factors Affecting the Use of Institutional Repositories

Instruction: Please select the most appropriate response

Key: 4=strongly agree, 3=Agree, 2=Disagree, 1=strongly disagree

S/N	Statement	4	3	2	1
	Computer Self-Efficacy				
1.	I am able to use institutional repositories if there is no one around to show me how to use them				
2.	I feel comfortable using institutional repositories on my own				
3.	I can confidently download and save files from institutional repositories when needed				
4.	I can confidently deposit my scholarly works into our university institutional repository				
5.	I can confidently retrieve scholarly works from our university institutional repository				
6.	I could use institutional repositories if there was no one around to tell me what to do				
	Computer Playfulness	**SA**	**A**	**D**	**SD**
7.	I am playful when using institutional repositories				
8.	My using institutional repositories is spontaneous				
9.	I am creative in using institutional repositories				
10.	I am original in using institutional repositories				
11.	I am imaginative when using institutional repositories				
12.	I am inventive when using institutional repositories				
	Computer Anxiety	**SA**	**A**	**D**	**SD**
13.	I do not feel nervous about using institutional repositories				
14.	I am not skeptical that my work could be plagiarized if deposited in an institutional repository				
15.	I do not hesitate to use institutional repositories for fear of making mistakes I cannot correct				
16.	The security of institutional repositories does not worry me				
17.	Using institutional repositories does not scares me				
18.	Using institutional repositories does not makes me uncomfortable				

Bio-data

A. Personal Data

1. **Full Name:** Oladokun Taofeek Abiodun

   Address: 43, Baale's Compound Olomi Omiyale, Ibadan, Oyo State

   Email: taofeekoladokun1@gmail.com

2. **Date and Place of Birth:** October 12th 1984/ Oyo State

3. **Nationality:** Nigerian

4. **Name and Address of Next of Kin:** Oladokun Suliyat T

   Add. Same as above

B. Educational Background

Educational Institutions attended with dates and Qualifications:

i. **Primary Education:** Nurul Islamiah Primary School, Ibadan State

ii. **Secondary Education:** Aperin Oniyere Commercial Grammar School, Orita-Aperin, Ibadan.

iii. **Higher Educational Institutions: Lead City University, Ibadan, Oyo State.**

C. Working Experience with Dates

a. **Organisation:** Lead City University Ibadan, Oyo State.

   Role: Library Officer

D. Awards and Fellowships:

2020. Best graduating student, Department of Library and Information Science, Lead City University Ibadan.

2009. Best graduating student, Department of Library and Information Science Federal Polytechnic Offa.

2010- Recipient, Federal Government Scholarship Award for Public Tertiary Institutions

Referees

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Signature **Date**

The University Compliance Certification

This is to certify that this thesis by Taofeek Abiodun OLADOKUN with Matric No LCU/PG/002194 in the Department of Information Management, Lead City University, Ibadan, is in FULL compliance with the approved university format and style.

Name **Signature**