CHAPTER ONE

INTRODUCTION

Background to the Study

Since the turn of this 21st century, advances in science and technology have changed the role and resources of the libraries from traditional to digital functionality. Information and communication technology (ICT) is now adopted for library service delivery which brings about the electronic or digital libraries. This metamorphosis of the library from the traditional to digital functionality as a result of the coming of ICT, has brought a paradigm shift for the acquisition and application of new skills set by librarians to be able to meet the demands of the digital library and information services.

Digital library is a library where all the information resources, management and access are computer technology based. Kumar (2008) affirms that it is a library of a large database working on hypertext environment. The environment supports the full life circle of creation, storage, preservation, dissemination and use of data and information which are made possible through the process of digitization. Digital libraries therefore, operate on the platform of digitization.

Adesode (2012) defines digitization as the process of converting the printed materials into born-digital images or by direct electronic process into

databases for online access. Similarly, Iginslo (2013) defines digitization as “the process of converting information document and art works into digital images”. In a related definition, Witten and Bridge cited in Igwesi (2010), defines digitization as “the process of taking traditional library materials that are in the form of books and papers and converting them into the electronic form where they can be stored and manipulated by a computer”. Digitization therefore, is a systematic process of collecting and managing information resources into electronic or digital images for online access.

In Nigeria, digital library is relatively new in the public and private university libraries. Although the university libraries are embracing digital library functions, Obaseki (2015) observes that all of them still depend on external databases to be able to meet the information needs of their clienteles. Digital library is a library of strong technology infrastructure based and requires digitization skilled librarians to manage the library functions maximally. This no doubt is why Anunobi (2011) affirms that digitization skills are major requirements needed by the traditionally trained librarians that still pervade most of the public and private university libraries in the country to function in modern library environment. Trivedi (2010) asserts that information users in this digital

age, are no longer satisfied with the resources of the traditional libraries. They want supplement which the dynamic digital library now provide.

Generally, the library environment world over is changing and now competitive in its information and services structure. Globally, libraries are digitizing information resources and making them available and accessible to end users via electronic media such as the World Wide Web (WWW), Internet and CD-ROM. The present advances in ICTs and the digitization initiatives in many university libraries across the globe are geared toward enhancing libraries to meet the requirements of the digital age. Nigerian public and private university libraries cannot be left out, they need librarians with effective and efficient digitization skills to contribute their library collections to the global digital information resources. Champell (2014) advances that in this digital age, various creative and useful services have emerged in the academic library environment where the librarians have the digitization skills to provide quality learning environment, create metadata, provide virtual reference services, teach users' information literacy, determine resources and manage their digital repositories.

Digitization skills are the major requirements for digital library operations. Tenant (2006) published a list of digitization skills necessary for those who create and manage digital collections and services to include: Imaging Technologies,

Optical Character Recognition (OCR), Markup Language including HTML, SGNL and XML, Cataloguing and Metadata, Indexing and Database technology, User Interface design, Programming, Web technology and Project Management.

Natarajan and Bhakta (2008) noted that digitization skills are interwoven and overlapping in description and implementation. Cassella and Morando (2011) categorize the digitization skills required by librarians into four sets: Internet skills, technology infrastructural skills, metadata skills and copyrights skills. These skills identified by Cassella and Morando (2011) are covered in this study.

The Internet skills, according to Cassella and Morando (2011) include: computer literacy skills, ability to use different search engines, downloading and uploading information online, saving Internet files in storage devices, skills to information gateways, subject directories, directory portals and online databases.

Technology infrastructure are the facilities and resources for digitization. The technology infrastructural skills, therefore, are the abilities to deploy and manage digitization software, apply book marking, rasterization, web linking, cropping, skills to implement interoperability standards and protocols, customize web page layout design, and plan and develop digital collections. These skills are critical to the librarian in ensuring a robust collections and security of resources from unauthorized access, alteration and loss.

The metadata skills provide the librarians the ability to select and use appropriate metadata standards like Dublin Core, Greenstone, MARC, METS, LOM, PREMIS, etc. Metadata skills enable the basic description of metadata schema and basic elements such as title, author, publisher, place of publication and date given to each item and encode the information in a standard data structure for the digital library.

The copyright skills provide librarians the ability and knowledge for the negotiation and management of intellectual property rights issues in the digital environment. This includes handling of licensing agreement, the principle of ''fair use'', copyright deposits and purchases.

Adeleke (2012) maintains that digitization project is a combination of digitization skills and that some of these skills were somewhat lacking among librarians in Nigerian public and private university libraries. This was attributed to the fact that only a few librarians had received some forms of training in digitization. Skill acquisition is the process of obtaining new ideas, abilities, or competences to enhance job performance and build staff confidence, less job supervision, increase productivity and growth on the job. In today's library environment, digital library has created a new platform for librarians to acquire new skills and abilities to succeed in the environment. Digitization skills may be

obtained through conferences, seminars, workshops or conventional classroom learning. Koma (2014) states that digitization skills are the building blocks for digital library services. This suggests the necessity for the acquisition of new skills by librarians to be able to provide effective library service delivery needed in this digital age.

Once skills are acquired, they should be applied. This no doubt is why Jagboro, Omotayo and Aboyade (2012) affirm that acquisition of appropriate digitization skills implies how equipped the librarians are to be able to provide and maintain electronic collections, develop their web presence, maintain online catalogue, digitize their content and meet their users in the social media. Acquisition and application of digitization skills therefore, make the job easier for the librarians to provide quality and efficient library service delivery to satisfy the changing information needs of their users' community. It is against this backdrop that this study seeks to investigate the acquisition and application of digitization skills by librarians in public and private university libraries in South-South Nigeria.

Statement of the Problem

The mission of the library is to link users with needed information. The integration of emerging information technology through digitization into the library is helping to reshape that mission and provide access to global digital

library resources thus satisfying users` information needs. In Nigeria, many authors such as Enock (2012), Koma (2014), Obaseki (2015) and Igun (2015) have acknowledged that Nigerian university libraries are embracing digital library functions with subscriptions to external databases to maintain their services. Also, studies have shown that there is slow pace of digitization activities in many of the Nigerian university libraries. Anunobi (2012) attributes the slow pace of digitization activities in Nigerian university libraries to inadequate skilled librarians due to resistance by the traditional trained librarians to acquire and apply new skills.

Adeleke (2012) and Obaseki (2015) in their separate works assert that digitization activities in some Nigerian university libraries are limited to only theses and dissertations for institutional repositories. In some situations, digitization projects end up in failure at the planning stage due to lack of experienced trained librarians to execute the digitization projects. This as the case, there is need for librarians' acquisition and application of new skills to handle digitization projects in the digital library environment. Skill acquisition is the process of enhancing librarians' abilities, techniques or capacity to handle digitization project. Once skills are acquired they should be applied. Application of digitization skills is applying acquired skills for digitization of information

resources for online access by information users wherever they are. Without the acquisition and application of digitization skills, accomplishing this task by the librarians will not be possible. This study therefore seeks to investigate the acquisition and application of digitization skills by librarians in public and private university libraries in South-South Nigeria.

Purpose of the Study

The general purpose of this study is to investigate the acquisition and application of digitization skills by librarians in public and private university libraries in South-South Nigeria. Specifically, the study seeks to ascertain whether:

1. Librarians in public and private university libraries in South-South Nigeria possess Internet skills.
2. Librarians in public and private university libraries in South-South Nigeria possess technology infrastructural skills.
3. Librarians in public and private university libraries in South-South Nigeria possess metadata skills.
4. Librarians in public and private university libraries in South-South Nigeria possess copyright skills.
5. Internet skills are applied by librarians in public and private university libraries in South-South Nigeria for digitization.

6. Technology infrastructural skills are applied by librarians in public and private university libraries in South-South Nigeria for digitization.
7. Metadata skills are applied by librarians in public and private university libraries in South-South Nigeria for digitization.
8. Copyright skills are applied by librarians in public and private university libraries in South-South Nigeria for digitization.

Significance of the Study

Education at the university level is regarded as the zenith of academic achievement. Hence it is believed that the findings of this study will be significant to relevant stakeholders in the educational sector such as the university management, the university librarians, library staff and researchers.

The findings would help the university management to identify whether librarians possess and apply digitization skills in their libraries service delivery. This will enable the university management to provide measures toward improving the library situation where necessary.

The findings of the study would be beneficial to university librarians as the findings will expose the digitization skills that have been acquired and being applied. When this exposure is made, the librarians will be able to acquire more digitization skills they lacked and by extension, apply more skills acquired.

The findings of the study would be helpful to library staff as the findings will reveal the digitization skills the librarians have acquired and being applied in their digital libraries. Armed with this revelation, they will be able to identify areas of their weakness and improve upon them for better service delivery.

The findings of the study would be useful to future researchers as the findings will bring them up to date information on the digitization skills acquired and being applied by the librarians. Armed with the knowledge, they will be able to take a cue from the methodology and data analytical tools in the research for similar research in nature.

Scope of the Study

The study is to determine the acquisition and application of digitization skills by librarians in public and private university libraries in South-South Nigeria. The study focuses on digitization skills, types of digitization skills, acquisition and application of the digitization skills by librarians in public and private university libraries in South-South Nigeria. The digitization skills are grouped into: Internet skills, digitization infrastructural skills, metadata skills and copyright skills. The study however, did not include digitization activities.

Research Questions

The study has the following research questions:

1. What are the Internet skills possessed by librarians in public and private university libraries in South-South Nigeria?
2. What are the technology infrastructural skills possessed by librarians in public and private university libraries in South-South Nigeria?
3. What are the metadata skills possessed by librarians in public and private university libraries in South-South Nigeria?
4. What are the copyright skills possessed by librarians in public and private university libraries in South-South Nigeria?
5. How are the Internet skills applied by the librarians in the public and private university libraries in South-South Nigeria for digitization?
6. How are the technology infrastructural skills applied by the librarians in public and private university libraries in South-South Nigeria for digitization?
7. How are the metadata skills applied by the librarians in public and private university libraries in South-South Nigeria for digitization?
8. How are the copyright skills applied by the librarians in public and private university libraries in South-South Nigeria for digitization?

Research Hypotheses

The following hypotheses are formulated for the study:

HO_1: There is no significant difference in the mean scores of Librarians in public and private university libraries in South-South Nigeria on the Internet skills acquisition.

HO_2: There is no significant different in the mean scores of librarians in public and private university libraries in South-South Nigeria on technology infrastructural skills acquisition.

HO_3: There is no significant difference in the mean scores of Librarians in public and private university libraries in South-South Nigeria on metadata skills acquisition.

HO_4: There is no significant difference in the mean scores of Librarians in public and private university libraries in South-South Nigeria on copyright skills acquisition.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter is organized under the following sub-headings:

Conceptual framework

Digitization

Digitization skills

Acquisition of skills

Application of skills

University libraries

Theoretical framework

Theory of Technology Acceptance Model (TAM) by Davis Fred (1989)

Empirical studies

Studies on acquisition and application of digitization skills

Summary of reviewed literature.

Conceptual Framework

Digitization

The concept of digitization is the process of converting printed document into electronic format or by direct electronic process into born-digital for online access. Fatoki (2005) asserts that digitization is ``converting analogue media to

digital form`` (p.87). The Library and Archives, Canada in Akintude (2007), also sees digitization as applying modern technology in ``translating a piece of information such as sound recording, picture or video into bits`` (p.64). In digital libraries, digitization is converting traditional library materials into electronic formats where the librarians have the digitization skills to do so.

Digitization Skills

Kuma (2014) posits that digitization skills are the capacity, technique, ability, talent or skills to use the Internet, technology infrastructure, metadata and copyright laws which are acquired through training or other form of organized learning for a person and apply information communication technology (ICT) to perform the functions of modern library information services. Digitization skills therefore, may be conceptualized as the technological knowledge, techniques or abilities of a librarian to use the Internet, technology infrastructure, metadata and copyright to carry out traditional library functions using the computers to disseminate information to users in wherever the location.

Internet

The Internet is a global linking of computer networks by devices known as routers with a common set of protocols to enable the transmission of data called Transmission Control Protocol/Internet Protocol (TCP/IP). The primary purpose of

the Internet is to facilitate information sharing using different tools such as the World Wide Web (WWW), Telnet and Gopher etc. of which the WWW is the most popular and widely used. The WWW is a collection of Internet sites that are accessed by means of a hypertext interface to access or link to other documents located anywhere on the web. A click on a link opens a file or site to access relevant materials or related ones located on another computer elsewhere on the globe.

Other indispensable components of the Internet include the Uniform Resource Locator (URL) which allows link between documents using an address bar to locate items. The Hypertext Transport Protocol (HTTP) is the protocol used to transfer hypertext or hypermedia documents. The Home Page is the starting point for locating information on the web.

In digital library, a robust Internet skills by librarians is inevitable for digitization process because it provides the librarians the computer literacy competences to navigate and browse the web, search databases, select documents, filter, retrieve and store digital documents for digitization project in a library. Internet skills also enhance librarians' ability to create home pages, carry out content conversion, download and upload documents, publish on the web,

carry out archiving, perform electronic messaging, web authoring, preservation and storage.

Technology Infrastructure

The concept of technology infrastructural in the digital library environment is an information technology (IT) context that refers to an entire collection of the hardware, software, networks, facilities and related equipment used to develop, test, operate, monitor, manage or support information technology services. They are the IT devices and products used in operating and managing digitization project. They are inevitable infrastructure for digitization process and they include the digital image software used to save images in proper file formats once the images are scanned, the Optical Character Recognition (OCR) for downloading large online resources, image editing software for book marking, Acrobat reader for converting image file to Portable document format (PDF), etc. Knowledge of technology infrastructure for digital library environment provides the librarians the ability to select and deploy hardware and software necessary for digitization, software installations skills, scanning techniques, book marking, rasterization, signing digital signature, digital imaging/formatting, design user interface, and troubleshooting. Ndor (2014) notes that software are indispensable component

of digitization project since it is what present the various template that relate various digital operations.

Metadata

The concept of metadata is a tool used to describe data about data in the electronic format. It is a kind of summary of basic information about data to make finding and working with particular instances of data easier. In digital library environment, it facilitates digitization process to decide semantic and syntax resource creation about authors, publishers, dates, titles, names, etc. It enhances identification of resource, discovery of resource, web page relevance and is a key factor in determining position in a search (Berson and Dubor, 2018). Metadata skills provide the librarians the ability to select and modify metadata schema to best fit the library needs because according to Koma (2014), there is no one-size-fits-all metadata schema that can satisfy different library materials and users communities. Metadata skills mean the librarians abilities to select and use appropriate metadata schema like Dublin Core, Greenstone, MARC, METS, LOM, PREMIS, etc. as it is suitable for their libraries. Metadata skills enable the building of basic descriptive metadata elements such as title, author, publisher, place of publication and date given to each item and encode the information in a standard data structure for the digital library.

Copyright

This is the intellectual property rights ascribe by law to owners of intellectual works such as literary works, musical works, artistic works, cinematographic films, sound recordings and broadcast. In Nigeria, the Copyright Commission is the regulatory body for the protection of intellectual works. The law forbids a library or a person to digitize, photocopy or copy an information resource, without the permission of the owner obtained. “fair use” of material allows content users to use copyrighted work for educational purposes. Materials that fall under “public Domain” mean the author holds no right. Licensing agreement stipulates the rights and obligations of who have access to information, how long a user can use information and whether information can be translated or repackage. A violation of the copyright is known as copyright infringement and is punishable by law. It is on the bases of this that it is highly inevitable for librarians to be equipped with copyright skills. The copyright skills provide the librarians the knowledge and skills of a general nature of copyright, the copyright domain, exceptions and limitations of copyright permits, negotiation and management of intellectual property rights issues in the digital environment, handling of licensing agreement, copyright deposits and purchases.

Acquisition of Skills

Skill acquisition is the process of obtaining new ideas, abilities, or techniques through various methods of training to enhance job performance and increase productivity and growth on the job. In today's library environment, digital library has created the platform for librarians to acquire new skills sets to succeed in the new library environment. Skill acquisition can be obtained through conferences, seminars, workshops or conventional classroom learning. Obosaye (2014) notes other methods of skill acquisition to include: apprenticeship, secondment, induction course, graduate traineeship schemes, simulation exercise, coaching, classroom learning, etc. Koma (2014) states that digitization skills are the building blocks for digital library services. This suggests the necessity for the acquisition of new skills by librarians to be able to provide effective library service delivery needed in this digital age.

Application of Skills

Application is the process or employment of means to accomplish an end. In digital library environment, application of skills is the ability of a staff to perform his work using acquired ideas, techniques or skills without constant direction. It involves putting proficiency on the job for better productivity. In digital library, librarians are required to apply innovations in adopted library technology to carry out their digital library functions in designing, maintaining and

transmitting added-valued information product and services to satisfy their users' information needs.

In this age of globalization, application of digitization skills is the librarian's competence or capacity to provide access to library resources using technologies, without hitches, to satisfy information users' needs. It involves applying all acquired digitization skills to ensure full scale digitization and information service delivery. Once skills are acquired and not applied, it brings about loss of job interest, low productivity and job mobility. Therefore, skills acquired should be applied.

Theoretical Framework

Technology Acceptance Model (TAM).

This study is anchored on Davis Fred (1989) theory of Technology Acceptance Model (TAM). This model is an information system theory that explains how users come to accept and use a technology. According to the model, the success of a system can be determined by user acceptance of the system based on two factors: perceived usefulness and perceived ease of use. These two

factors are influenced by the attitude toward usage of the system. If a system is not easy to use, it then will probably not be perceived as useful. The theory postulate that a user's perceptions about the system's usefulness and ease of use result in a behavioral intention to use or not to use the system. That is, the use of an information system is determined by the behavioural intention in which is determined by an individual's attitude toward the use and also by the perception of it utility.

TAM provides a basis with which one traces how external variables influence belief, attitude and intention to use. According to TAM, external factors affect intention and actual use through mediated effects on perceived usefulness and also the perceived ease to use. Below is a diagrammatic representation of the Davis theory explained above:

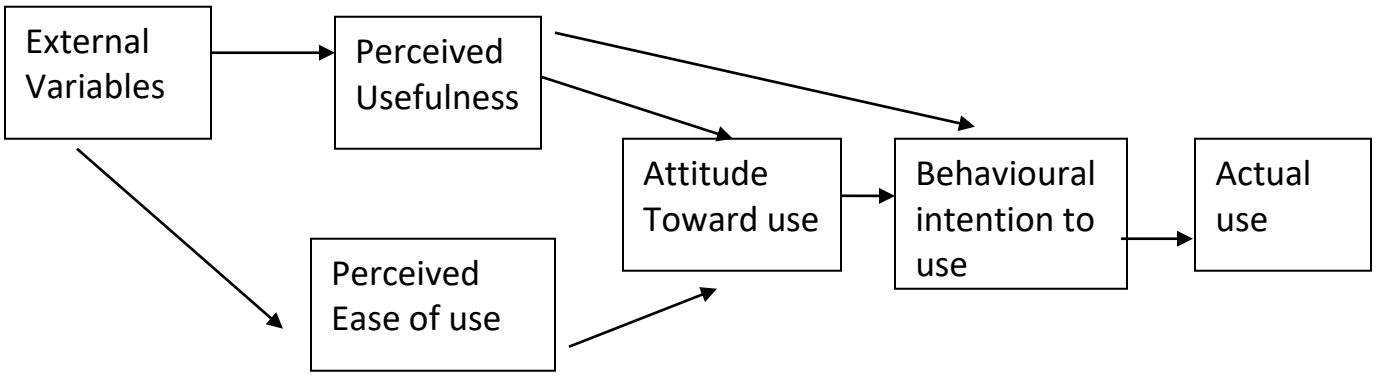

Fig. 1. Diagrammatic Representation of Davis 1989 TAM

(Adopted from Park, S.Y page 151)

This theory is adopted for this study as it explains the rational for the increasing global acceptance and use of digital technology for library information service delivery because of its usefulness, ease to use and user's satisfaction with the technology structure for library resources. Therefore, Librarians need to acquire digitalization skills in relation to effective digital library services in their university libraries so as to be able to meet the information needs of their library patrons.

Theoretical Studies

Digitization Skills

Globally, libraries are digitizing their local contents where the librarians have the skills to do so for general online access. Tenant (2006), Igbinosa and Aliu (2010) listed the digitization skills in digital library environment that enables digitization process in a library to include digital imaging and formatting skills, web design, skills for programming and scripting languages, XML standards and technologies, basic system administration skills, digitization processes skills, metadata creation skills, changing policies, contract law, negotiation and licensing. These skills have been grouped by Cassella and Morando (2011) into

four groups: Internet skills, technology infrastructural skills, metadata creation skills and copyright skills which are the variables in this study.

Internet Skills

Eyitayo (2007), defines the Internet as a massive network of computers which allows users access to vast quantities of information and communicate with everyone around the world. According to Eyitayo (2007), the Internet as a network of networks; a publicly accessible network of interconnected computer networks sometimes called the Net or Information Super Highway. Sreenivasulus (2000), Adesode (2014) and Idiedo (2015) affirm that the first skill and competency that a digital librarian is expected to develop is the ability to manage knowledge and digital library in terms of Internet knowledge in order to be able to access, gather and publish information on the web. Igwesi (2010) identifies the Internet skills and competencies necessary for digital librarians to include: computer literacy competence, ability to navigate, browse, filter, retrieve and access digital documents, the skills to provide digital reference, search network databases in number of digital sources and websites. The competency to create home pages, content conversion using Adobe Acrobat reader, downloading techniques, web publishing, archiving, electronic messaging, web authoring, preservation and storage. Igwesi (2010) also identifies the multi-media ability

which includes ability in multi-media indexing, image processing, interactive digital communications and visualization. Other skills are for speech recognition and conference techniques including teleconferencing and video conferencing. There is also the digital information system skill for interfacing online and off-ramps, twists and turns of digital knowledge. The competency to digitize print collections and manage compact Disc Read Only Memory (CD-ROM), design and development of database and conversion of print media into digital media.

Tiwari (2007) cited by Adesode (2015) notes as part of digitization skills, the ability of a librarian to search the full text of documents in many different languages; support for images, sounds and other media; user aids to help searchers formulate better queries; performance improvements to allow very large collections to be searched more quickly; feedback techniques to allow searchers to find documents similar to a known document; machine learning techniques to provide recommendations based on a history of use; and document summarization to extract relevant portions of a long document or to combine information from several documents.

Technology Infrastructural skills

Digitization process have been seriously improved by the rapid advances in modern technologies. Abiolu (2010) asserts that before embarking on any digitization exercise, one of the first decision any library management should considered is the selection of appropriate software and hardware suitable for the project which can only be done by technical skilled expert. In the present digital environment, the technology infrastructure for digitization programs are the computer software and hardware that are essential and quite indispensable in digitization process. Librarians need the technology infrastructural skills to be able to deploy appropriate software and hardware specifications required for effective digitization activities such as book marking, cropping, rasterization, web linking, and signing digital signature, content conversion, etc.

The technology infrastructural skills required for digitization are many. Sreenivasulu (2000), Ezeani and Ezema (2009) and Cuesta (2011) Yerkey (2013) identify the skills to include the ability to deploy and manage digitization software, scanning techniques, implement of interoperability standards and protocols, customize web page layout design, and plan and develop digital collections. There are also the skills for multimedia indexing, image processing, interactive digital communications and visualization, the skills speech for

recognition and conference techniques including teleconferencing and video conferencing.

Abiolu (2010) observes that “computer hardware and software are constantly changing and currently produced computers are fast enough to handle almost any scanning and other digitization processes …. Hence, selecting the most recent version of software with good quality and digital library specification should be given adequate consideration in addition to its compatibility with the available hardware (Igwesi, 2010).

Rowely (2014) defines software as programme instruction that indicates to a computer the task to be performed, such as how information should be stored, formatted and manipulated to satisfy required results. Generally, software controls data that are processed by the computer, the speed of processing, monitored the results and the way users interact with the processing unit of the computer depends on one`s skills. Adogbeji and Onohwapor (2009) reveals that “most libraries do not hold on the software selection process before they are acquired” (p68). Acquiring a good and effective software should be of a paramount importance to any digital library for adequate computerization.

Obviously, software is an indispensable component of digitization project since it is the software that presents the various templates that relates to various

digital operations. Fatoki (2011) and Okoye (2013) agree that before selecting library software, the librarian must be able to adjudge the suitability of the software in terms of memory, disk-storage, search facilities, print formulation and program utilities.

Rothenberg (2012) making clear the value of software to digital library says, “digital documents are not only vulnerable to loss via media…, but they become equally inaccessible and unreadable if the software needed to interpret them or the hardware on which the software runs is lost or become obsolete” (p.142). Ali (2015) citing Usman (2007) reveals that digital library software works with the web server in providing various creation, organization, maintenance, indexing, search and retrieval. He posits that in choosing the software for digitization, some of the features that should be put into consideration include: support for customized metadata, collection administration, support for standards like Dublin Core metadata standard, search and retrieval and multi-lingual support.

Fatoki (2007) and Tiwari (2014) listed some software for digitization to include: Digital Image Software (DIS) which is used to crop, rotate, colour, correct, resize and save images in proper file formats once the images are scanned. Optical Character Recognition (OCR) for scanning printed pages on flatbed scanner and recognizing the letters as ASCII text. Digital Image Management

software used to manage large number of digital files. It can be created or used in off-the-shelf system. Greenstone Digital Library Software (GDLS) is for open-source software issued under the terms of the GUN General Public License. The main aim of the software according to Tiwari (2014) is to empower users, particularly in university libraries and other public service institutions to build their own digital libraries. Greenstone is a suite of software for building digital library collections, provides new way of organizing information and publishing it on the internet or on CD-ROM. It was produced by the New Zealand Digital Library Project at the University of Waikato, developed and distributed in cooperation with UNESCO and the Human Info NGO. It integrates functions such as metadata, full text search and retrieval, multi-lingual support, support for multiple document formats and administration (UNESCO, 2007).

Jagboro (2010) also identifies some tools and or equipment used for digitization to include computer systems, scanners which could be flatbed, hand-held or sophisticated scanning machines like SMA21 and Kirats, digital cameras, CD or DVD writer, and printers. Fatoki (2007) notes that RAM: Random Access Memory (RAM) can be thought of as the computer short term memory. It helps in making easy access to information contained in the computer hence the more the RAM, the better the computer can keep track of what it is doing at any given time,

especially with large image files and complicated software. The RAM module could be upgraded for better performance. '*Monitor:21'* monitors are preferable as it is easier to view information but any other size of monitor could be used for digitization. The '*Hard drive'* is where all the files and programs of the computer are stored. Hard drive with large capacity is preferable as digital image files can be very large and space consuming on the computer. This can also be installed.

CD-ROM drive: this is used to read information off computer disc and is standard on nearly all computers. It is an external storage device. *Scanner*: scanners with very high resolution and scanning speed should be acquired such as flatbed scanners. This is very good for unbounded pages and photographs and can be used for transparences, slides, films and single-sheet batching using additional accessories. Other types of scanners include: film/slide, drum, large-format and planetary scanners. *Digital camera* (Dig cam): Digital cameras are really the only way to capture 3-dimentational objects, since scanners cannot focus on items that are too far from the scanner bed. There are cheaper alternatives to planetary scanners for fragile and oversized items.

Adeleke (2014) asserts that in many African university libraries, digitization projects are ongoing. According to Adeleke, digitization skills acquired by the librarians are helping many libraries in the continent to preserve their intellectual

and cultural heritage. Also, many university libraries are engaging in digitization of their institutional repository for future scholarships. This view is also supported by Tiwari (2014) who asserts that digital library collections may be the major contribution from the print media to the Internet, and vice versa. Some digital libraries are created by traditional libraries who want to put their documents at the disposal of Internet users. The extent of digital library building activities is extremely broad, covering virtually every field of study. What is required by the library is the librarians' digitization skills competencies. This includes skills for the entire range of different forms of publication and media for recording and storing knowledge and other information (Tiwari 2014).

Wilson (2009) writes that since the beginning of the web and the automation processes, many institution in Europe such as libraries, research centers, museums, universities, etc. with digitization capacity, have been running digitization activities of the information resources they hold. This is helping to make their institutional resources available thereby increase their visibility and better performance in ongoing web ranking of world institutions. This would on the long run help to improve the image of such institutions in the global circle. Apart from increased visibility, digitization preserves endangered information

resources, improves the efficiency of information search mechanisms and improves access to library resources (Adeleke 2012).

Akintunde and Anjo (2012) notes that digitization provides the platform for sharability and duplicity of data and networking because of the digital form of content. It also enhances the life-span of records as well as securing data and records that would have been obliterated due to their age. So, the old practice of librarians in selective dissemination of information can be done more conveniently in a digital environment by merely touching computer key and icons, because automatic indexing and semantic relationships are carried out in the design of different software for managing digital content. All that the librarians required to be able do all these is digitization skills competence.

Copyright skills

Fabunmi (2011) affirms that copyright is a form of protection provided by law to authors of original works of authorship including literary, dramatic, musical, and artistic and certain other intellectual works. Carke (2009) cited by Moahi (2013) assert that copyright essentially refers to the rights of owners of works of literary, dramatic, musical, artistic, or cinematographic nature. Copyright skills provide librarians the ability and knowledge for the negotiation and management of intellectual property rights issues in the digital environment. Beth

(2010) cited by Spalti (2012) identifies the copyright skills for digital librarian to include the ability to handle licensing agreement, copyright deposits and purchases. For libraries in this digital era to avoid copyright infringement, Katori (2013) suggests that librarians should use their copyright knowledge and skills to form consortia in order to share resources and to bring their combined purchasing power to negotiate advantageous license agreement to gain permission to use copyrighted works. In this sense, to access a database, the skilled librarian may have to sign a user license agreement that stipulates rights and obligations to the user. Like who may have access to information resource, how long a user can use it, whether it can be translated or repackaged, etc. licensing therefore affects "fair use", "first sale" and "public lending rights" especially for libraries and information centers.

Adeyemi (2011) posits that in Nigeria, copyright owners are granted the rights to do the following: make copies, perform their works, translate their works, and display it publicly. According to Adeyemi (2011) copyright right protects the expression of ideas and not the ideas themselves. Tomike (2012) writes that copyright infringement occurs, when a substantial part of a book or work is reproduced without the owner`s permission, or is used for economic gain. Ideally, an individual use of others` work must either acknowledge the fact and

/or also seek the owner`s permission. Tomike (2012) also notes a number of exceptions to copyright of work to include “fair use” or “fair dealing” and the “first sale” doctrines. “Fair use” allows content users to access, make copies and use copyrighted materials without seeking permission – as long as the use is for educational, research and non-profit making purposes. Ojedokun (2007) affirms that in digital library environment, the way content of work is accessed and used, especially on the Internet has changed. According to Ojedokun (2007), the use of such technologies enables the copyright owners to use technology that grants certain rights to the users and prevent certain uses of the copyrighted work. Digital Right Management (DRM) allows monitoring and control of how such materials are used, in effect, putting copyright owners in control of their works, even as they charge users for it. There are two key technologies that make up a DRM system: digital markings and encryption. According to Bailet (2014), digital marking may be simple labels that attach rights information to content; or watermarks that typically hide information that can be used to identify a work. Encryption involves scrambling content, so that those who have no authorization in the form of a code or password cannot decipher the content.

Guimaraes (2014) affirms that most resources in university library collections are copyrighted works, meaning that a good proportion of the

everyday activities of these libraries come into contact with copyright law. It is required that if one copies, photocopies, scans or digitizes a work, the right of reproduction must be obtained, taken into account, as it does when something is downloaded from the Internet.

Metadata Skills

Metadata is data that describes other data. Tiwari (2007) defines metadata as an electronic cataloging system that summarizes basic information about data which can make finding and working with particular instances of data easier. For example, author, date created and date modified and file size are examples of very basic document metadata. Cole (2012) asserts that librarian must be skilled to filter through metadata schema to make it much easier for one to locate specific document. There are many schemas that have been developed for certain types of data and if a library data matches a developed schema, the schema becomes adopted. Some schemas are very complex and require a level of expertise of the digital librarian to implement.

A digital librarian, Dumadsvic (2013) advances, should be able to:

- Select metadata standards to be adopted in a library
- Use metadata schema to identify the relationship between metadata elements as regards to the semantics, the syntax and the other options available for resource identification.

- Use metadata application profile to delineate metadata elements in a set to meet its functional requirements for resource discovery.
- Use encoding schema for entering data such as dates, name of people, etc. as a syntax-encoded text string designed for machine processing.
- Use crosswalk tool for mapping metadata standard with another metadata schema and the application profile.
- Harmonization tool to create and maintain one set of metadata with other related metadata to facilitate access.

Hughes (2015) noted that one of the most important uses of metadata is to locate a resource. Thus, a book reference is designed to give enough information to allow one to find that book. The other primary use of metadata is resource discovery: this is finding resources relevant to one`s research but which one is unaware of. The subject index of card catalog is a metadata collection which is good for such a purpose. Sutton (2015) writes that digital librarian should acquire metadata skills to be able to select, design and evaluate metadata schema and develop guideline for using a metadata schema.

Udor (2013) posits that metadata development generally reflect an extension of cataloging practice to new dimensions of content and access. Libraries should seek to understand how these new access strategies might better serve target user community. Faruk (2014) notes that digital librarians should be able to use metadata schema for descriptive cataloging, access points, authority control, subject analysis, controlled vocabulary (subject headings and classification) and the effects of controlled vocabulary on searching. According to

Faruk (2014), these Skills are what enable the application of standards such as AACR2, MARC and Dublin Core schema for resource description and discovery; for cataloging materials of various format such as sound recordings, video and electronic-files including knowledge of interoperability and issues related to integrating diverse collections into an information system.

Empirical Studies

This reviewed Studies on:

Acquisition and Application of Digitization Skills

Abudukadir and Nock (2010) study the use of library database among academic staff and postgraduate students of Ahmadu Bello University, Zaria, used descriptive survey research design, structured questionnaire on 4–point rating scale and simple percentage for data analysis of 50 respondents to identify lack of training, unawareness, lack of skills in computer appreciation and lack of familiarity with search engines as some of the challenges users face in the use of the digital library resources. According to the findings, 58% users were not aware of the e-resources available in the library; 51% had no computer skills and knowledge of search engines.

Abudukadir and Nock (2010) is related with present study in research design. The former study used descriptive survey design and questionnaire which are also used in the present study. The two studies differ in scope, area of study and data analysis. The former study dealt with academic staff and postgraduate students in Ahmadu Bello University, Zaria, while the present study focused on librarians in public and private university libraries in South-South Nigeria. The former used simple percentages in analysis while the present study used inferential statistics with SPSS.

Uwiafo (2013) in a study of librarians` acquisition and use of Internet skills in university libraries in South-South Nigeria, used a descriptive survey research design, total enumeration sampling technique of 102 respondents, structured questionnaire for data collection and simple percentage for data analysis to reveal that 78% librarians possessed skills for Internet but that only 33% use is made of the numerous information resources on the Internet. According to the findings, even though the Internet is beneficial, several factors such as inadequate search skills, poor Internet connectivity, electricity supply, etc., impeded its effective use.

Uwiafo (2013) study is related with present study in that, both studies deals with librarians' acquisition of Internet skills. Again, Uwiafo (2013) and present study used descriptive survey research design to reveal that the librarians possessed Internet skills and also both studies focused on South-South Nigeria but with different years of their studies.

In a related study, Kumar and Manjunath (2013) examine Internet use and its impact on academic performance of university teachers and researchers: a comparative study; used 140 respondents in a descriptive survey design, questionnaire for data collection were analyzed using frequencies and simple percentages to find a high use of Internet sources and services by teachers and researchers in university of Lagos. According to the results, 71% of the

respondents use the Internet in support of their study and teaching. Majority of 89% of them learnt to use the Internet through self-instruction, trial and error, and help of friends and by reading books/papers. Results also show that there was impact on the academic performance in writing more research papers, doing better research and better learning experience.

The relationship of Kumar and Manjunath (2013) study with the present study is that both deal with Internet skills. The former was restricted to Internet use and impact on lecturers and researchers at University of Lagos to be precise. The present study covers public and private university librarians in South-South Nigeria which is more areas covered than Kumar and Manjunath (2013).

Odede and Edesiri (2014) also examine ICT skills and Internet usage among Library and Information Science Undergraduates in Edo and Delta states. A descriptive survey method, questionnaire and a sample population for data analysis of 238 respondents were used to reveal that there was no significant relationship between ICT skills possessed by library and information science students in the two states and their Internet usage. The results also show that the students possessed the ICT skills and adequately make use of the Internet; their ICT skills were acquired through self-taught with manuals and handbooks, courses of study and friends.

The relationship the present study derive from Odede and Edesiri (2014) findings is that ICT and Internet skills acquisition are variables in the present study. Both studies also relate in their use of descriptive survey research design methods. The former dealt with undergraduate students while the present study focused on librarians. Although the two studies differ in scope, they were both carried out in the same South-South geopolitical zone. While the present study covers the entire South-South zone, the former only covered two states in the zone: Edo and Delta states.

Mohammed (2014) in a study on management of digitization projects in Nigerian university libraries, used a survey method, questionnaire and oral interview with a population of 40 respondents to study two university libraries in North Eastern Nigeria and found that majority of staff involved in digitization project management were librarians who possess the ability to use software packages like Abbyfine reader, Omnipage and PDF respectively. The study also revealed that all the digitization activities in university libraries emphasize on PhD dissertations, MSc theses and university journal articles whose copyrights have been obtained.

The relationship of Mohammed (2014) study with the present study is that they both deals with application of digitization skills. While the former focused on

North-Eastern zone, the present study covered South-South geopolitical zone. Also related is that the former focused on application of core digitization skills which present study also covered.

Zumaru (2013) study the librarians Internet skills and digitization project in Nigerian academic libraries used a descriptive survey research design, questionnaire and simple percentage to analyze 120 respondents and found that scanty use is made of numerous Internet skills by librarians in Nigeria libraries and that Internet skills were not adequately applied for digitization of library resources. The results of the study show 43% use of Internet resources and 40% for digitization project.

The relationship of Zumaru (2013) with present study is that both studies used the same descriptive survey research method. While Zumaru (2013) study covered academic librarians in Nigeria, the present study covered librarians in public and private university libraries in South-South Nigeria.

Ezeani and Ezema (2011) citing Olatokun (2008) work on fifteen university libraries in Nigeria preservation techniques use, used a survey method, questionnaire and simple percentages for data analysis of 55 respondents to reveals that digitization is 95% rarely used due to lack of awareness. They noted this as very discouraging and cited Tennet (2002) and Anbu (2006) who in their

separate works have called for institutional repositories as a way of handling Africa digitization project, but that very few institutions have done much in digitizing their local content. The relationship of this finding with the present study is that the preservation techniques reported is an aspect of Internet and technology infrastructural skills used in the present study. While the former study covered the entire country, the present study focused on South-South Nigeria.

Adeleke (2012) study on digitization capacity and skills of academic librarians in Nigeria, used a survey method with 86 respondents in 11 selected public and private university libraries to found that digitization was still at its infancy in the libraries and that few librarians were involved in the process. The study also found librarians scored themselves below average in many of the specific digitization infrastructural skills even though they considered them important. Again, majority of the librarians had no formal professional training in digitization capacity building and only few spent time for personal skill development process.

The relationship between Adeleke (2012) studies with the present study in that both studies dealt with acquisition of digitization skills in public and private university libraries. The former covered the entire country while the present

study focused on South-South zone of the country; both studies deal on librarians` digitization skills capacity acquisition and application

Ibinaiye (2012) study on digitization of library resources in Nigeria universities: The experience of Kashim Ibrahim Library of the Ahmadu Bello University, Zaria, used a descriptive survey method, total enumeration technique of 25 respondents to reveals that the librarians have acquired technology infrastructural skills but that theses, Dissertations and Seminar Papers were the only Library Resources digitized while other library resources such as Journals, Newspapers, Textbook, etc. were yet to be decided upon due to the restrictions of the copyrights law on them. The study also revealed that the criteria for selections was based on nature of materials, quality of paper while the software used for the digitization of the resources was D-Space and Abby- Fine Reader. The finding noted that the scanners did not recognize things like Charts, Tables and some other Textual Formats of hard copy materials. Sometimes, theses and dissertations produced on softcopies in CDs did not contain complete bibliographic details, some had only tittles page without the rest relevant pages that should contain vital information. The finding also showed that the type of Scanners purchased could not perform complete functions required in the digital section of the library. The study recommended for the acquisition and use of

simple book scanner to be able to carry out their daily routine of work. It also recommended that those staff with some initial training be given more training so as to continue to update and polish their professional skills.

The relationship of Ibinaiye (2012) study with the present study is that it deals with librarians' acquisition of technology infrastructural skills, which is an aspect of present study. It also relate in research design. The former study used descriptive survey design which was also used in the present study. The two studies differ in area of study. The former study was restricted to librarians at Kashim Ibrahim Library of the Ahmadu Bello University, Zaria, while the present study covered the entire South-South zone. In the former study, librarians applied their acquired skills to digitalized theses, dissertations and seminar papers for the former's institutional repository, but librarians in the present study do not apply their acquired skills for digitization exercise in the university libraries. It is also related in the tools mentioned for digitization exercise in the former study which are also variable elements used in the present study.

In a related study, Okewale and Adetimirin (2010) study on training programs on use of Software packages by librarians in South-West Nigeria, used 650 respondents in a descriptive survey and observation research methods and simple percentages for data analysis to reveal that 60% of the library staff and

55% of the student users were not exposed to training on the use of software packages. Also reported is that the core modules needed to operates on full automation were not available in four libraries studied. The implication of this finding on this study is that there is poor acquisition and application of technology infrastructural skills by the librarians.

The relationship between Okewale and Adetimirin (2010) study with the present study is that the former used descriptive survey design in one aspect, while the present study used descriptive survey design. The two studies differ in scope, some aspect of data analysis and in area of study. The former dealt with use of software packages by librarians in South-West while the present focused on librarians in public and private university libraries in South-South Nigeria.

In another study, Adeyomon and Ajide (2010) on workers training programs in two university libraries in Nigeria: Use of digital library resources by students, used 600 registered library users in a descriptive survey research design to find that users` education for students were uncoordinated, poorly introduced and non-examinable because majority of the participants had no adequate skills and knowledge in digital library operations. The study notes that as a result, the available information resources in the libraries were grossly underutilized. The relationship with present study is that it deals with training which is related to

skill acquisition in the present study. Both studies also used descriptive survey design.

Buttler and Garcha (2010) studied 81 catalogers using a descriptive survey method, questionnaire and simple percentage for data analysis to examine the evolving role of metadata librarian: competencies found in job description in the United States, results reveal that 80% technological innovation had changed the profession. According to the results, automation had shifted cataloging duties to non-professionals as 76% catalogers participated more in bibliographic instruction and database maintenance or upgrading and acquiring management responsibility. The relationship with present study is that it dealt with metadata and librarians' competencies. While the former was a study done outside Nigeria, the present study was carried out in Nigeria.

Saliu, Ahutu and Rabiu (2016) in a study of photocopying practice and copyright law in Nigeria libraries: librarians` perspectives, used a social survey method, questionnaire and simple percentage in data analysis of 87 respondents to reveal that librarians needed to play prominent roles in the issue of copyright law. According to the results, 68% of users had no limit to photocopies being made from textbooks and other library materials. More also, 72% users` awareness of copyright law did not influence their photocopying practice. The

study emphasized on adequate awareness of librarians in the issue of copyright law for effective and efficient service delivery. Law about ''fair use'' should not be abused in terms of photocopying materials. The relationship with the present study is that it deals with copyright application which is an aspect of this study. The former focused on photocopying practice and copyright law in Nigerian libraries while the present study used the two variables as related to acquisition and application of digitization skills by librarians.

In a related study, Tongo (2013) studied the copyright law and photocopying practice in two Nigeria university libraries in Oyo state, used descriptive survey, questionnaire and simple percentage in data analysis of 110 respondents to reveal that reprographic reproduction of printed materials was so widespread in university environment. Results show that 58% photocopied materials have practically replaced printed texts and instructional materials that are protected under Nigerian copyright law. The results show that 89% of respondents were unaware of such offence as copyright infringement. Results further pointed out that photocopy were the commonest reprographic method of violating copyright law in Nigerian tertiary institutions.

The relationship of Tongo (2013) with the present study is that the former study is on photocopying practice and copyright law which are variables in the

present study. Both studies used descriptive survey design, questionnaire for data collection and inferential statistics for data analysis.

Summary of Literature Review

The literature reviewed was organized under the following headings: Conceptual framework, theoretical framework, theoretical studies and empirical studies. Concept of digitization and its skills were reviewed. Definitions of different authors were discussed. Digitization skills was conceptualized as the technological knowledge, techniques or abilities of a librarian to use the Internet, technology infrastructure, metadata and copyright, to carry digitization functions in digital libraries.

Under theoretical framework, the theory of Technology Acceptance Model (TAM) was reviewed. The rational for the increasing global acceptance and use of digital technology for library information service delivery because of its usefulness, ease to use and the user`s satisfaction with the technology, were explained and it relationship with the present study was also established. Theoretical studies such as types of digitization skills, digital libraries, digitization skills competence and application of digitization skills were reviewed.

Empirical studies were also reviewed. The section gave the researcher insight into the work such as studies on acquisition and application of digitization

skills that have been done in areas related to the present study. Although there were reports of one digitization project or another in some Nigerian University libraries, literature on them were few and such literature did not report the step-by-step approach used. However, no research work has been done to the knowledge of the researcher on acquisition and application of digitization skills by librarians in public and private university libraries in South-South Nigeria hence the present study.

CHAPTER THREE

METHOD

This chapter presents the procedure that was adopted in this study. This is discussed under the following sub-headings: Research Design, Area of the Study, Population of the study, Sample and Sampling Techniques, Instrument for Data

Collection, Validation of instrument and Reliability of the Instrument, Method of Data Collection and Method of Data Analysis.

Design of the Study

The study adopted the descriptive survey design. This design was considered appropriate for the study because of its ability to quantitatively describe attitudes, beliefs and opinions of individuals from a population. The design was also considered appropriate because according to Creswell (2003), the design is used to describe what is in existence in respect to conditions or variable that is found in a given situation.

Area of the Study

The area of this study was the South-South geo-political zone of Nigeria. The area is the oil rich belt of Nigeria and is noted as one of the largest rainforest wetland in the world with coastal ridge barriers, fresh water swamp as well as mangrove forest which encourages fishing and farming as the major occupation for the rural dwellers. The zone is made up of six states: Akwa-Ibom, Bayelsa, Cross Rivers, Edo, Delta and Rivers. The zone was chosen because of the location of the universities in areas which has engendered positive attitude towards education because of population density occasioned by the many multi-national

oil companies, government administrative offices, and other medium and small scale business.

Population of the Study

The population of the study consisted of 221 librarians from all the public and private university libraries in the South-South Nigeria. The distribution was as follows: Federal university libraries= 99 librarians; State university libraries= 91; private university libraries= 31. All the 221 librarians were used in the study because of the small size. Momoh (2001) and Osuala (2007) in their separate works, affirm that when the population is very small, the entire population should be used for the study.

Instrument for Data Collection

The study used two instruments for data collection: 1. Cognitive test and 2. Questionnaire. The cognitive test was used to measure the acquisition of digitization skills by the librarians. The test comprised 30 multiple choice questions covering major areas of the four digitization skills set: Internet skills, technology infrastructural skills, metadata skills and copyright skills. The respondents were required to tick the appropriate answer from the list of alternatives to each of the questions to measure their acquisition of the skill. The questionnaire was used to elicit data from the respondents to ascertain their

application of digitization skills in their libraries. The respondents were required to tick their agreement on each item of their application of the digitization skills. The questionnaire is titled: Application of Digitization Skills by Librarians (ADSL).

Validation of the Instrument

The two instruments: the cognitive test and questionnaire together with the research topic, purpose of the study, research questions and hypotheses were given to three lecturers for face and content validation. One of them was in the Department of Educational Foundations while two were in the Department of Library and Information Science, Faculty of Education, Nnamdi Azikiwe University, Awka. They examined and scrutinized the items in the cognitive test and the questionnaire in terms of the content, relevance, suitability, clarity and coverage of the dimensions of the study. Their comments, suggestions and recommendations were used to fine-tune the two instruments. Items considered irrelevant were dropped and those they considered appropriate were included to make the final drafts of the instruments. (See appendix B on page 90).

Reliability of the Instrument

In other to establish the reliability of the instruments, copies of the instruments were administered on twenty respondents from the University of Lagos library, Akoka. The responses of the respondents on the cognitive test were

analyzed using Kuder-Richardson formula KR-20, while those of the questionnaire on application of digitization skills were analyzed using Cronbach's alpha. The reliability coefficients obtained for the cognitive test were 0.87, 0.88, 0.89 and 0.77 for the four sections of the instrument which are: Internet skills, technology infrastructural skills, metadata skills, and copyright skills. Regarding the questionnaire on application of digitization skills, the reliability coefficients of 0.82, 0.79, 0.93 and 0.87 were obtained. The overall reliability coefficient for the entire instrument was 0.85. The reliability coefficients were considered sufficient because they fall within the high and very reliability indices.

Method of Data Collection

The cognitive test was administered by the researcher with the help of brief research assistants in all the various university libraries. The test instruments were collected at the end the time frame of 15 minutes. The questionnaire was quite easier to administer to the librarians on their duty tables in all the libraries. A total of 221 librarians' were involved in the study, 212 copies of the two research instruments were retrieved from the respondents in all the university libraries.

Method of Data Analysis

The data obtained for the study were analyzed using descriptive and inferential statistics. For research questions 1 to 4, respondents mean and standard deviation were computed. For each item in the instrument, the correct answer was awarded 1mark, while each wrong answer was awarded zero. The scores for each respondent were computed to get a total score for each section. The total scores for the four sections were converted to % score for comparability. The mean score below 50 was regarded as “do not possess”, while the mean score of 50 and above was regarded as “possess”. For research questions 5 to 8, respondents mean rating for each of the items were computed to get a total mean score and standard deviation for each of the four sections. The scores for each of the sections were divided by the number of items in each section to reduce it to the scale mean score of 1 – 4. The mean score from 2.50 and above was regarded as “Apply”, while the mean score of less than 2.50 was regarded as “Not apply”. For the hypotheses, p-value was used to determine the significance of the hypotheses. Where the calculated p-value was less than the stipulated level of significance (0.05), the null hypothesis was rejected. Whereas the null hypothesis was not rejected where the calculated p-value was greater than the stipulated level of significance (0.05). (For raw score frequency table, see appendix J, page 109)

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter presents and analyzes data generated from the cognitive test and the questionnaire.

Research Question 1: Do librarians in public and private university libraries possess internet skills?

Table 1: Mean Internet Skills Acquisition Scores of Librarians in Public and Private University Libraries

	Public (n=181)			Private (n=31)		
	Mean	SD	Remark	Mean	SD	Remark
Internet Skills	79.00	19.06	Possess	70.00	18.62	Possess

As indicated in Table 1, the mean score on internet skills for librarians in public university libraries is 79.00 while that of their counterparts in private university libraries is 70.00. Both mean scores show that librarians in public and private university libraries possess internet skills.

Research Question 2: Do librarians in public and private university libraries possess technology infrastructural skills?

Table 2: Mean Technology Infrastructural Skills Acquisition Scores of Librarians in Public and Private University Libraries

	Public (n=181)			Private (n=31)		
	Mean	SD	Remark	Mean	SD	Remark
Technology Infrastructural Skills	67.58	18.56	Possess	58.53	17.44	Possess

As shown in Table 2, the mean score on technology infrastructural skills for librarians in public university libraries is 67.58 while that of their counterpart in private university libraries is 58.53. Both mean scores show that librarians in public and private university libraries possess technology infrastructural skills for digitalization.

Research Question 3: Do librarians in public and private university libraries possess metadata skills?

Table 3: Mean Metadata Skills Acquisition Score of Librarians in Public and Private University Libraries

	Public (n=181)			Private (n=31)		
	Mean	SD	Remark	Mean	SD	Remark
Metadata Skills	29.17	24.45	Do not possess	27.74	16.87	Do not possess

Table 2 shows the mean score on metadata skills for librarians in public university libraries to be 29.17 while that of their counterparts in private university libraries is 27.74. Both mean scores indicate that librarians in public and private university libraries do not possess metadata skills for digitalization.

Research Question 4: Do librarians in public and private university libraries possess copyright skills?

Table 4: Mean Copyright Skills Acquisition Scores of Librarians in Public and Private University Libraries

	Public (n=181)			Private (n=31)		
	Mean	SD	Remark	Mean	SD	Remark
Copyright Skills	70.99	22.47	Possess	61.69	18.24	Possess

Table 4 shows the mean score on copyright skills for librarians in public university libraries to be 70.99 while that of those in private university libraries is 61.69. Both mean scores indicate that librarians in public and private university libraries possess copyright skills for digitalization.

Research Question 5: Are internet skills applied by librarians in public and private university libraries for digitalization?

Table 5: Mean Ratings of Librarians in Public and Private University Libraries on Internet Skills Applied For Digitalization

	Private (N 31)			Public (N 181)		
	Mean	SD	Remark	Mean	SD	Remark
1. I frequently update digital contents such as blog or news with "Really Simple Syndication" (RSS).	1.94	.79	Not Applied	1.77	.76	Not Applied
2. I use online catalogue in accessing web resources.	2.15	.85	Not Applied	1.97	.80	Not Applied
3. I access different online databases with different	2.99	.75	Applied	2.74	.82	Applied

search engines						
4. I frequently chat and e-mail information on the internet	3.20	.74	Applied	2.97	.91	Applied
5. I exchange files as attachment, download, save and retrieve online files	2.52	.87	Applied	2.19	.95	Not Applied
6. I frequently perform digital referencing and publish online.	2.03	.84	Not Applied	1.55	.57	Not Applied
Mean of Means	2.47	.80	Not Applied	2.19	.80	Not Applied

Table 5 shows the mean of means of 2.47 for librarians in public university libraries and 2.19 for those in the private university libraries. Both means are below the 2.50 cutoff point, indicating that internet skills are not applied by librarians for digitalization in the public and private university libraries.

The analysis of the items shows that out of the six listed items, librarians in public university libraries apply three internet skills while their counterpart in the private university libraries apply two. They are: accessing different online databases with different search engines (mean=2.99 for public and 2.74 for private), frequently chatting and e-mailing information on the internet (mean=3.20 for public and 2.97 for private) and exchanging files as attachment, downloading, saving and retrieving online files (mean= 2.52 for public). The remaining items (item 1, 2 and 6) with means 1.94, 2.15 and 2.03 respectively are not applied by librarians in

public university libraries while items 1, 2, 5 and 6 with means 1.77, 1.97, 2.19 and 1.55 respectively are not applied by librarians in private university libraries.

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Research Question 6: Are technology infrastructural skills applied by librarians in public and private university libraries for digitalization?

Table 6: Mean Ratings of Librarians in Public and Private University Libraries on Technology Infrastructural Skills Applied for Digitalization

	Private (N 31)			**Public (N 181)**		
	Mean	SD	Remark	Mean	SD	Remark
1. I install digitization software in my library	1.15	.41	Not Applied	1.13	.43	Not Applied
2. I convert Microsoft office files and images to PDF, organize pages in PDF and export PDF files to word or excel	1.77	.77	Not Applied	1.71	.78	Not Applied
3. I apply digital image software to scan document and upload them into databases	1.22	.53	Not Applied	1.16	.37	Not Applied
4. I perform image editing to remove unwanted	1.30	.59	Not Applied	1.16	.37	Not Applied

portion of a document before scanning						
5. I apply digital image management software (DIMS) to manage large number of file documents	1.34	.57	Not Applied	1.23	.43	Not Applied
6. I perform the task of web linking of scanned resources	1.24	.51	Not Applied	1.19	.40	Not Applied
7. I customize web page layout design for my library	1.30	.57	Not Applied	1.19	.40	Not Applied
Mean of Means	1.33	.56	Not Applied	1.25	.45	Not Applied

Table 6 shows the mean of means of 1.33 for librarians in public university libraries and 1.25 for those in the private university libraries. Both means are below the 2.50 cutoff point, indicating that technology infrastructural skills are not applied by librarians for digitalization in the public and private university libraries. The analysis of the items show that the seven listed items on technology infrastructural skills were not applied by librarians in the public and private libraries. The mean ratings for librarians in public university libraries range from 1.15 to 1.77 while those of their counterparts in the private university libraries range from 1.13 to 1.71.

Research Question 7: Are metadata skills applied by librarians in public and private university libraries for digitalization?

Table 7: Mean Ratings of Librarians in Public and Private University Libraries on Metadata Skills Applied for Digitalization

	Private (N 31)			**Public (N 181)**		
	Mean	SD	Remark	Mean	SD	Remark
1. I apply description to file names	1.57	.80	Not Applied	1.23	.56	Not Applied
2. I apply standards such as AACR2 MARC using my library metadata schema	1.39	.61	Not Applied	1.19	.40	Not Applied
3. I bring together files that constitute digital collections in different sources	1.92	.90	Not Applied	1.77	.72	Not Applied
4. I frequently locate	1.98	.88	Not	1.84	.73	Not

and together resources irrespective of their location			Applied			Applied
5. I apply metadata element like syntax to correct files	1.14	.38	Not Applied	1.03	.18	Not Applied
6. I publish collections on website, CD-ROM or DVD.	1.68	.78	Not Applied	1.55	.68	Not Applied
7. I frequently upload resources to my library website	1.17	.47	Not Applied	1.03	.18	Not Applied
Mean of Means	1.55	.68	Not Applied	1.37	.49	Not Applied

As depicted in Table 6, metadata skills are not applied by librarians for digitalization in the public and private university libraries. This is shown by the mean of means of 1.55 for librarians in public university libraries and 1.37 for those in the private university libraries. Both means are below the 2.50 cutoff points. The analysis of the items show that all the seven listed items on metadata skills are not applied by librarians in public and private university libraries. The mean ratings for librarians in public libraries ranges from 1.14 to 1.98 while those of their counterpart in the private libraries range from1.03 to 1.84.

Research Question 8: Are copyright skills applied by librarians in public and private university libraries for digitalization?

Table 8: Mean Ratings of Librarians in Public and Private University Libraries on Copyright Skills Applied for Digitalization

	Private (N 31)			Public (N 181)		
	Mean	SD	Remark	Mean	SD	Remark
1. I apply the principles of copyright exception to selection, collection and preservation of library materials	2.61	.79	Applied	2.58	.62	Applied
2. I guide against photocopying an entire work of an author	2.75	.77	Applied	2.48	.72	Not Applied

3. I apply the principle of " fair use" in protecting the interest of owner of work in my library	2.74	.67	Applied	2.68	.75	Applied
4. I apply precise citation for materials collected from a given source	2.45	1.01	Not Applied	2.55	.85	Applied
5. I apply the principle of "public domain" to collection and preservation of resources	2.43	.88	Not Applied	2.16	.64	Not Applied
Mean of Means	2.59	.82	Applied	2.49	.71	Not Applied

Table 6 shows that copyright skills are applied by librarians for digitalization in the public university libraries and not applied by librarians in private university libraries. This is indicated by the mean of means of 2.59 for librarians in public university libraries and 2.49 for those in the private university libraries.

The analysis of the items shows that out of the five listed items, librarians in public university libraries apply three copyright skills. They are: applying the principles of copyright exception to selection, collection and preservation (mean=2.61), guarding against photocopying an entire work of an author (mean= 2.75), and applying the principle of “fair use" in protecting the interest of owner of work in the library (mean= 2.75).

Librarians in the private libraries also apply three out of the five listed copyright skills which are: applying the principles of copyright exception to selection, collection and preservation (mean=2.58), applying the principle of “fair use" in protecting the interest of owner of work in the library (mean= 2.66) and applying precise citation for materials collected from a given source (mean= 2.55)

The remaining items (item 4 and 5) with means 2.45, and 2.43 are not applied by librarians in public university libraries while items 1, and 5 with means 2.48, 2.16, are not applied by librarians in private university libraries.

Hypothesis 1: Librarians in public and private university libraries do not differ significantly in their acquisition of internet skills.

Table 9: t-test Comparison of Mean Scores of Librarians in Public and Private University Libraries on Acquisition of Internet Skills

Source of variation	N	Mean	SD	df	p-value	Decision
Public	181	79.00	19.06	210	.01	Significant
Private	31	70.00	18.62			

The t-test analysis presented in Table 9 shows that the p-value of .01 was less than the stipulated 0.05 level of significance. The null hypothesis of no significant difference between the two groups was therefore rejected. This shows that

librarians in public and private university libraries differ significantly in their acquisition of Internet skills.

Hypothesis 2: Librarians in public and private university libraries do not differ significantly in their acquisition of technology infrastructural skills.

Table 10: t-test Comparison of Mean Scores of Librarians in Public and Private University Libraries on Acquisition of Technology Infrastructural Skills

Source of variation	N	Mean	SD	df	p-value	Decision
Public	181	67.58	18.56			
				210	.01	Significant
Private	31	58.53	17.44			

Table 10 shows the p-value of .01 which is less than the stipulated 0.05 level of significance. The null hypothesis of no significance between the two groups was therefore rejected. This shows that librarians in public and private university libraries differ significantly in their acquisition of technology infrastructural skills.

Hypothesis 3: Librarians in public and private university libraries do not differ significantly in their acquisition of metadata skills.

Table 11: t-test Comparison of Mean Scores of Librarians in Public and Private University Libraries on Acquisition of Metadata Skills

Source of variation	N	Mean	SD	df	p-value	Decision

Public	181	29.17	24.45	210	.68	Not Significant
Private	31	27.74	16.87			

The t-test analysis presented in Table 10 shows that the p-value of .68 is greater than the stipulated 0.05 level of significance. The null hypothesis of no significant difference between the two groups was therefore not rejected. This shows that librarians in public and private university libraries did not differ significantly in their acquisition of metadata skills.

Hypothesis 4: Librarians in public and private university libraries do not differ significantly in their acquisition of copyright skills.

Table 12: t-test Comparison of Mean Scores of Librarians in Public and Private University Libraries on Acquisition of copyright Skills

Source of variation	N	Mean	SD	df	p-value	Decision
Public	181	70.99	22.47	209	.01	Significant
Private	31	61.69	18.24			

The analysis presented in table 12 shows the p-value of .01 which was less than the stipulated 0.05 level of significance. The null hypothesis of no significant difference between the two groups was therefore rejected. This indicates that

librarians in public and private university libraries differ significantly in their acquisition of copyright skills.

Summary of Findings

From the analysis of data, the following findings were made:

1. Librarians in both public and private university libraries possess Internet skills but the skills acquired are not applied in their respective libraries. Although the librarians indicated applying certain Internet skills items listed for them, findings suggest that they were not applied for digitization purposes in their libraries.
2. Librarians in both the public and private university libraries possess adequate technology infrastructural skills but the librarians do not apply the skills in their libraries.
3. Librarians in both the public and private university libraries do not possess metadata skills. The Librarians in both libraries scored very low on all the items listed on metadata skills.
4. In both the public and private university libraries, the librarians possess copyright skills. But findings revealed that librarians in the public university libraries apply copyright skills in their libraries especially in photocopying while their counterpart in the private university libraries do not.

CHAPTER FIVE

DISCUSSION OF RESULTS, CONCLUSION AND RECOMMENDATIONS

This chapter presents the discussion of the results from the data collected and analyzed according to the eight research questions and eight hypotheses stated in the study. Also presented are conclusion, recommendations, implications of the results, limitations of the study, and suggestions for further research.

Discussion of Results

The results of the study are discussed as follows:

Possession of Internet Skills by librarians

Librarians in the public and private university libraries in South-South Nigeria possess Internet skills. This findings support Uwiafo (2013) whose earlier study on acquisition and use of Internet skills by librarians in South-South Nigeria, reported that librarians in university libraries in South-South Nigeria adequately possessed Internet skills. Test for hypothesis shows that the mean rating on Internet skills between the librarians in public and private university libraries differ significantly, the null hypothesis of no significant difference was therefore rejected.

Possession of Technology Infrastructural Skills by Librarians

Librarians in the public and private university libraries possess technology infrastructural skills. This finding is in agreement with Mohammed (2014) findings that librarians in Nigerian university libraries possessed technology infrastructural skills; but present findings contradict Adeleke (2014) study which reported that certain technology skill sets and competencies were lacking among librarians in Nigerian university libraries and that many of them lacked formal trainings. Test for hypothesis shows that the mean rating on technology infrastructural skills between the librarians in public and private university libraries differ significantly, the null hypothesis of no significant difference was therefore rejected.

Possession of Metadata Skills by Librarians

Librarians in the public and private university libraries do not possess metadata skills. This finding suggests that the librarians have not attended training programmes on metadata skills. This findings is in support with Chaudhry and Kamathi (2014) who affirmed that cataloging librarians in the traditional library environment dating 2005 to 2010, fell into 'electronic environment' and that majority of librarian jobs in the electronic environment called for a knowledge based automated cataloging systems, signaling a dependency of cataloging on technology and the need for acquisition of metadata skills and knowledge for effective digital library service delivery. Test for hypothesis shows

that the mean rating on metadata skills between the librarians in public and private university libraries differ significantly, the null hypothesis of no significant difference was therefore rejected.

Possession of Copyright Skills by Librarians

Librarians in the public and private university libraries possess copyright skills in their libraries... This finding negate earlier studies by Saliu, Ahutu and Rabiu (2016) and Tongo (2013) who in their separate studies found that librarians do not observe copyright because of their lack of awareness of copyright law. Test for hypothesis shows that the mean rating on copyright skills between the librarians in public and private university libraries differ significantly, the null hypothesis of no significant difference was therefore rejected.

Application of Internet Skills by Librarians for Digitization

Librarians in the public and private university libraries do not apply Internet skills for digitization. This finding supports Zumaru (2013) study which revealed that scanty use is made of numerous Internet skills by librarians in Nigeria academic libraries and that Internet skills were not adequately applied for digitization of library resources.

Application of Technology Infrastructural Skills for Digitization

Librarians in both university libraries do not apply technology infrastructural skills. This finding suggests that though in table two mean score results show that the librarians possess technology infrastructural skills, they do not apply them for digitization purposes in their libraries. This finding negates Mohammend (2014) study on management of digitization project in Nigerian university libraries which reported that librarians who are involved in digitization project management use software packages like Abbyfine reader, Omnipage and PDF respectively.

Application of Metadata Skills

Librarians in both public and private university libraries do not apply metadata skills. This findings support Chaudhry and Kamathi (2014) position which suggests that librarians do not apply metadata skills which are major requirements for digitization exercise in the digital library environment. In this sense, since the librarians do not have metadata skills, there is no digitization activity in the libraries.

Application of Copyright Skills

Librarians in the public and private university libraries do not apply copyright skills for digitization exercises in their libraries. Findings support Tongo (2013) and Saliu, Ahutu and Rabiu (2016) earlier studies of photocopying practice

and copyright law in Nigeria libraries which revealed that users had no limit to photocopies being made from textbooks and other library materials. More also, 72% users` awareness of copyright law did not influence their photocopying practice.

Conclusion

Findings in this study show that librarians in the public university libraries possess and apply more digitization skills than their counterpart in the private university libraries. From the findings, it can be concluded that though librarians in both university libraries possess some digitization skills, they do not apply them in their respective university libraries. Results show that metadata skills are not possessed and applied by the librarians in their respective university libraries.

Implications of the Findings

Finding in this study show that librarians in the public and private university libraries possess Internet skills but they do not apply the skills for digitization. The implication of this finding is that since the librarians do not apply their Internet skills possess for digitization, they do not contribute their library resources online for global Internet access.

Findings in this study also show that majority of the librarians in both the public and private university libraries possessed certain technology infrastructural

skills which they do not apply for digitization exercises in their respective libraries. The implication of this finding is that once skills are acquired and are not applied, there is the tendency for such skills to be forgotten when the librarians would need to apply the skills in future.

From the study, findings also revealed that the librarians in both university libraries lacked metadata skills. The implication of this on this study is that the librarians have no metadata skills to search deep web for resources to digitalize and also apply metadata standards for digitization in their libraries which would further hinder the digitization process.

Also, findings in the study revealed that the librarians in both the public and private university libraries possessed copyright skills which are applied only by librarians in the public university libraries in photocopying materials. The implication of this finding is that librarians in the private university library do not follow copyright law in photocopying materials in their libraries.

Recommendations

Based on the findings of this study, the researcher recommends the following:

1. Library management should as a matter of interest and concern provide effective internet library environment to encourage their librarians to exploit the world of the internet with their acquired skills to the benefits of their library

information service delivery. This will further enable them to help their users with whatever information they need irrespective of the location.

2. Library authorities should make adequate provisions for needed technology infrastructure for digitization projects, to enable their librarians to apply their acquired technology infrastructural skills in digitizing their traditional library resources for online access. This will help to make their libraries presence more visible on the web.
3. Librarians on their own should acquire metadata skills as a matter of necessity since metadata skills are key components for successful digitization exercise in any library. They should also be able to apply such skills for successful implementation of digitization projects in their libraries. Such skills will also enhance their job performance, build self-confidence to act as consultants to other libraries in matters of metadata creation.
4. Library management should assist the librarians through sponsored training programmes to acquire more digital library skills for digitization exercises in the public and private university libraries especially in the South-South Nigeria. This will motivate the librarians in their jobs performance and provide them more job satisfaction in the discharge of key digitization activities and help them to trouble shoot.

5. The librarians in both university libraries should take the issue of copyright law very seriously especially in the area of photocopying of library materials. They should ensure the principles of “fair use” and “public domain” in protecting the interest of owners of works and in the collection and preservation of resources in their university libraries. This will help them to avoid copyright law infringement which is a serious offence in the law of copyright in Nigeria.

Limitations of the Study

The study used two different types of instruments to collect data. These are the cognitive test and the questionnaire instruments. In all the university libraries studied, there was a problem of getting all the respondents to agree to the cognitive test in a classroom on the ground that they cannot abandon their duty post. Some others claim too busy to attempt the test and also to fill the questionnaire instrument hence there was no 100% return of the instruments.

Suggestions for Further Research

Based on the delimitation of this research study, further studies may be undertaken in the following areas:

1. The research may be replicated in public and private university libraries in other geo-political zones of Nigeria.
2. Extent of digitization activities in public and private university libraries in South-South Nigeria.

3. Perception of Librarians to managing digitization projects in Nigerian public and private university libraries.

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APPENDIX A

TABLE 3:1 DISTRIBUTION OF THE POPULATION

S/N	NAME OF INSTUTIONS (FEDERAL UNIVERSITIES)	STATES LOCATED	TOWN	POPULATION SIZE
1	Federal University of Petroleum	Delta	Effurun	09
2	Federal University	Bayelsa	Otuoke	15
3.	University of Benin	Edo	Benin City	22
4.	University of Calabar	Cross Rivers	Calabar	15
5.	University of Port Harcourt	Rivers	Port Harcourt	18
6.	University of Uyo	Akwa-Ibom	Uyo	20
STATES UNIVERSITIES				
7.	Akwa-Ibom State University	Akwa-Ibom	Uyo	05
8.	Ambrose Alli University	Edo	Ekpoma	12
9.	Cross Rivers State University of Technology	Cross Rivers	Abasi-Calabar	11
10.	Delta State University	Delta	Abraka	19
11.	Niger Delta State University	Bayelsa	Wilberforce Island	22
12.	Rivers State University of Science and Technology	Rivers	Nkpoli	10
13.	Rivers State University of Education	Rivers	Port Harcourt	12
PRIVATE UNIVERSITIES				
14	Benson Idahosa University	Edo	Benin City	06
15	Edwin Clark University	Delta	Kiagbodo	02
16	Igbinedion University	Edo	Okada	06

17	Michael and Cecilia Ibru University	Delta	Owhrode	02
18	Novena University	Delta	Ogume	03
19	Obong University	Rivers	Obong Ntak	02
20	Rhema University	Rivers	Obeama=Asa	02
21	Samuel Adegboyega University	Edo	Ogwa	03
22	Wellspring University	Edo	Benin City	01
23	Western Delta University	Delta	Oghara	04
	TOTAL			221

SOURCE: Offices of the Reference Librarians

APPENDIX B

Details of Validity of Instrument

Experts that did the validation of the instruments faulted items in the following source of corrections. They suggested corrections to items wrongly used, restructured hanging phrases, word order and spellings. After correcting the affected items based on their observations, the instrument were submitted to the project supervisor who approved them. Below is the details of the corrections:

Faulted Items on the Validated Instruments

Source of corrections	**Suggested Corrections**	**Remark**
"Gender" in section A	Be deleted	Deleted
"Level of …" in title	Use "Extent of …"	Affected

Questions with more than one answer option	Be made to form one option	Affected
Numbering of options	Use “A,B,C,D” options	Affected
“URL and WWW” mean the same thing	Use only one option	Affected
“Not Sure” options	Desist using them	Affected
Questionnaire items	Remove “Can ,enable”	Affected

APPENDIX C

COGNITIVE TEST RESEARCH INSTRUMENT

Dear Respondent,

This COGNITIVE TEST is an aid for a study on Extent of Acquisition and Application of Digitization Skills by Librarians in Public and Private University Libraries in South-South Nigeria, in partial fulfillment of the requirements for the award of the Ph.D degree in Library and Information Science of the Nnamdi Azikiwe University, Akwa.

Kindly answer the questions to enable me complete the study. All information provided will be treated with utmost confidentialities.

Thanks for your co-operation

Yours Sincerely

Christopher Omigie A.

APPENDIX D

SECTION A: BACKGROUND INFORMATION

Instruction: Please, kindly tick below as appropriate to you:

Do your library engage in digitization program? Yes ( ) No ( )

Name of University: ……

Status of University: Federal ( ) State ( ) Private ( )

SECTION B: COGNITIVE TEST ON LIBRARIANS DIGITIZATION SKILLS.

Instruction: Please tick ( ) the correct answer from letters A - D that follows each questions bellow

Internet Skills

1. Computer literacy skills enable you to perform which of the following functions?
    A. Applying copyright to web resources
    B. Digitized printed resources

   C. Searching, downloading and uploading web resources
   D. Use metadata to search web resources
2. When you click the web browser program, which of the following would first appear?
   A. Home page
   B. Save option button
   C. Network location
   D. Preview file
3. The web address that specifies the protocol to be used and the exact location of a web site on the Internet is known as the_____
   A. Home page
   B. Internet Relay Chat (IRC)
   C. Address bar
   D. Uniform Resource Locator (URL)
4. If the content on a webpage goes outside the bounds of the page`s viewing area, what can you do to see the rest of the information on your computer?
   A. Try to open the page again
   B. Use the back/forward button on your browser
   C. Use the scroll bar on the side/button of the page
   D. Put off the computer and reboot.
5. When one finished viewing a new or pop-up window or tab, what do one do?
   A. Click on the original window or tab that one was looking at and continue on
   B. Click on the small “x” button on all the windows or tab open, and then navigate back to the original page that was on
   C. Click on the small “x” button to exit the specific tab or window that one has finished looking at.
   D. Click on backspace button
6. An “address bar” in your web browser is _____
   A. A space that display the url (like “www….org”) or that you can type in a new url.
   B. The bar at the button of the page that shows what programs you have open
   C. A bar that shows the IP address or location of where you are accessing the Internet from
   D. A home page button to exit

7. The software program that enables one to view and interact with various resources on the web is known as_____
    A. Web server
    B. A web browser
    C. Network
    D. Internet
8. Which of the following is used to source for information on the web?
    A. Information gateways
    B. Online databases
    C. Search engines and meta-search engines
    D. Subject portals
9. The Really Simple Syndication (RSS) is an Internet tool used for which of these?
    A. Publish frequently updated digital content such as blog, or news
    B. Locate database resident
    C. Search closed access resources
    D. Chat via email
10. Search engines are huge databases containing which of these?
    A. Social media sites
    B. E-mail addresses
    C. Chatting site
    D. Web page files

Technology Infrastructure

11. Which of the following is an indispensable component for digitization?
    A. CD-ROM/slide
    B. Software and hardware
    C. Microfilm reader
    D. Printing machine
12. Which software is used to save images in proper file formats once the images are scanned?
    A. Digital Image Software
    B. Cropping Images
    C. Rotating Images
    D. Not sure
13. The Optical Character Recognition (OCR) software is used for which of these functions?

A. Scanning printed pages
B. Downloading large online resources
C. Uploading online documents
D. Navigating search engines

14. Image editing in digitization is the process of removing unwanted portion of a document. This is known as what?
    A. Book marking
    B. Cropping
    C. Rasterization
    D. Web linking
15. The act of making corrections to document text and layout is by the process of_____
    A. Proofreading and formatting
    B. Conversion
    C. Formatting
    D. Designing
16. Which of these scanners is used for reading bar code?
    A. Hand-held scanner
    B. Flatbed
    C. SMA21 Kirats
    D. Digital camera
17. Which of these software is used for converting image file to portable document format (PDF)?
    A. OCR
    B. Windows
    C. Adobe converted
    D. Power point

METADATA SKILLS

18. Semantic and syntax are metadata elements used for which of the following?
    A. Resource location
    B. Resource savings
    C. Resource notification
    D. Resource identification
19. Metadata application profile is an element that is used to delineate_____

A. Resource coding
B. Resource file tag
C. Resource discovery
D. Resource name

20. Encoding schema is a machine processing syntax-encoded text string used for which of these?
    A. Entering data such as dates, names, titles, etc.
    B. Searching files online
    C. Accessing online books
    D. Browsing websites
21. In metadata process, Harmonization tool is used to create and maintain one set of metadata with another so as to do which of these?
    A. Facilitate access to resources
    B. Transfer data
    C. Record data
    D. Collect online resources
22. Which of the following tools is used for mapping metadata standard with another metadata schema and the application profile?
    A. Crosswalk
    B. Application profile
    C. Cropping
    D. Loading

COPYRIGHT SKILLS

23. In copyright, the term "Public Domain" means_____
    A. The author holds no right
    B. The publisher has the right
    C. The users hold no right
    D. The library holds the right
24. Licensing agreement must stipulates all the following rights and obligations to the user except _____
    A. Who may have access to information
    B. How long a user can use information
    C. Whether an information can be translated/repackage
    D. Who is illiterate
25. In Nigerian copyright law, owners are granted the right to do all the following except which of these?

A. Not to make copies
B. Perform their works
C. Translate their works
D. Display their works publicly

26. In copyright law, for library or a person to digitize an information resource without the owner`s permission is called_____
    A. Copyright infringement
    B. Copyright abuse
    C. Plagiarism
    D. Stealing intellectual property
27. "Fair use" in copyright law allows content users to do the following except which one of these?
    A. Make copies
    B. Use copyrighted material for research
    C. Use copyrighted material for educational purpose
    D. Sell copyrighted material
28. In Nigeria, it is required that if one copies, photocopies, scans or digitizes a work, _____must be obtained.
    A. The right of reproduction
    B. The right of use
    C. The right of ownership
    D. The right of sales
29. As a general rule, how long does a copyright last in Nigeria?
    A. 50 years after the author's death
    B. 60 years after the author`s death
    C. 70 years after the author`s death
    D. 100 years after the author`s death

30. Which author`s right is affected when a work is uploaded to make it accessible for all in the Internet?
    A. Communication to the public
    B. Business right
    C. Publishing right
    D. Writing right

Answers to the Cognitive Test:

1. C
2. A
3. D
4. B
5. C
6. A
7. B
8. C
9. A
10. D
11. A
12. B
13. B
14. C
15. A
16. A
17. C
18. D
19. C
20. A
21. A
22. B
23. A
24. D
25. A
26. A
27. D
28. A
29. C
30. A

APPENDIX E

RESEARCH QUESTIONNAIRE

Dear Respondent,

This questionnaire is an aid for a study on Extent of Acquisition and Application of Digitization Skills by Librarians in Public and Private University Libraries in South-South Nigeria, in partial fulfillment of the requirements for the award of the Ph.D degree in Library and Information Science of the Nnamdi Azikiwe University, Akwa.

Kindly fill the questionnaire on "Extent of Application of Digitization Skills" to enable me complete the study. All information provided will be treated with utmost confidentialities.

Thanks for your co-operation

Yours Sincerely

Christopher Omigie A.

APPENDIX F

QUESTIONNAIRE INSTRUMENT ON APPLICATION OF DIGITIZATION

Instruction: Please, indicate your agreement to your application of the following skills in digitization project in your library with a tick ( ) inside the appropriate columns bellow.

Key: SA = Strongly Agreed
A = Agreed
D = Disagreed
SD = Strongly Disagreed

Application of Internet Skills				
1. I frequently update digital content such as blog or news with "Really Simple Syndication" (RSS).	**SA**	**A**	**D**	**SD**
2. I use online catalogue in accessing web resources				
3. I access different online databases with different search engines.				
4. I frequently chat and e-mail information				

on the Internet.				
5. I exchange files as attachment, download, save and retrieve online files				
6. I frequently perform digital referencing and publish online.				
TECHNOLOGY INFRASRTUCTURAL SKILLS				
7. I install digitization software in my library.				
8. I convert Microsoft office files and images to PDF, organize pages in PDF and export PDF files to word or excel.				
9. I apply digital image software to scan documents and upload them into databases.				
10. I perform image editing to remove unwanted portion of a document before scanning.				
11. I apply digital image management software (DIMS) to manage large number of file documents.				
12. I perform the task of web linking of scanned resources.				
13. I customize web page layout design for my library.				
Metadata Skill				
14. I apply description to filenames.				
15. I apply standards such as AACR2 MARC using my library metadata schema				
16. I bring together files that constitute digital collections in different sources.				
17. I frequently locate and bring together resources irrespective of their location.				
18. I apply metadata elements like syntax to correct files.				

19. I publish collections on website, CD-ROM or DVD.				
20. I frequently upload resources to my library website.				
Copyright Skills				
21. I apply the principles of copyright exception to selection, collection and preservation.				
22. I guide against photocopying an entire work of an author.				
23. I apply the principle of "fair use" in protecting the interest of owner of work in my library.				
24. I apply precise citation for material collected from a given source.				
25. I apply the principle of "public domain" to collection and preservation of resources.				

APPENDIX G

Reliability Analysis
Cognitive Test Research Instrument
Reliability Analysis Using Kuder-Richardson KR-20

Internet Skills

ITEM NUMBER	**NO. Answered Item Correctly**	**NO. that answered incorrectly**	**Proportion that answered item correctly (*p*)**	**Proportion that answered item incorrectly (*q*)**	***p x q***

1.	12	8	.60	.40	.24
2.	20	0	1.00	.00	.00
3.	12	8	.60	.40	.24
4.	13	7	.65	.35	.23
5.	10	10	.50	.50	.25
6.	7	13	.35	.65	.23
7.	14	6	.70	.30	.21
8.	12	8	.60	.40	.24
9.	16	4	.80	.20	.16
10.	6	14	.30	.70	.21
					2.01

Technology Infrastructure

ITEM NUMBER	**NO. Answered Item Correctly**	**NO. that answered incorrectly**	**Proportion that answered item correctly (*p*)**	**Proportion that answered item incorrectly (*q*)**	***p x q***
11.	13	7	.65	.35	.23
12.	14	6	.70	.30	.21
13.	4	16	.20	.80	.16
14.	6	14	.30	.70	.21
15.	4	16	.20	.80	.16
16.	8	12	.40	.60	.24
17.	10	10	.50	.50	.25
					1.46

Metadata Skills

ITEM NUMBER	**NO. Answered Item Correctly**	**NO. that answered incorrectly**	**Proportion that answered item correctly**	**Proportion that answered item incorrectly**	***p x q***

			(*p*)	(*q*)	
18.	5	15	.25	.75	.19
19.	11	9	.55	.45	.25
20.	8	12	.40	.60	.24
21.	10	10	.50	.50	.25
22.	13	7	.65	.35	.23
					1.16

Copyright Skills

ITEM NUMBER	**NO. Answered Item Correctly**	**NO. that answered incorrectly**	**Proportion that answered item correctly (*p*)**	**Proportion that answered item incorrectly (*q*)**	***p x q***
23.	12	8	.60	.40	.24
24.	9	11	.45	.55	.25
25.	14	6	.70	.30	.21
26.	9	11	.45	.55	.25
27.	12	8	.60	.40	.24
28.	14	6	.70	.30	.21
29.	11	9	.55	.45	.25
30.	9	11	.45	.55	.25
					1.90

SUMMARY SCORE SHEET

Respondents	Internet Skills	Technology Infrastructure	Metadata Skills	Copyright Skills	TOTAL SCORE
1.	5.00	2.00	3.00	4.00	14.00
2.	4.00	4.00	1.00	8.00	17.00
3.	8.00	4.00	3.00	4.00	19.00
4.	5.00	3.00	1.00	2.00	11.00
5.	5.00	3.00	2.00	7.00	17.00
6.	8.00	1.00	1.00	4.00	14.00
7.	6.00	3.00	3.00	5.00	17.00
8.	8.00	4.00	4.00	4.00	20.00
9.	5.00	2.00	1.00	5.00	13.00
10.	9.00	4.00	2.00	4.00	19.00
11.	7.00	3.00	.00	5.00	15.00
12.	5.00	3.00	2.00	5.00	15.00
13.	6.00	3.00	1.00	4.00	14.00
14.	5.00	1.00	1.00	4.00	11.00
15.	6.00	4.00	3.00	6.00	19.00
16.	7.00	4.00	2.00	4.00	17.00
17.	3.00	2.00	3.00	2.00	10.00
18.	7.00	2.00	3.00	4.00	16.00
19.	5.00	2.00	2.00	2.00	11.00
20.	8.00	5.00	3.00	7.00	23.00
TOTAL SCORES	**122/20 Mean = 6.10 Variance = 11.52**	**59/20 Mean = 2.95 Variance=8.11**	**41/20 Mean=2.05 Variance=7.50**	**90/20 Mean=4.50 Variance=7.30**	**312**

Formula= $Kr20 = \frac{N}{N-1}\left(\frac{V - \sum pq}{V}\right)$

Internet Skills

$$\frac{20}{20-1}\left(\frac{11.52 - 2.01}{11.52}\right)$$

$$1.05\left(\frac{9.51}{11.52}\right)$$

1.05 x 0.83

Kr20 = 0.872

Technology Infrastructure

$$\frac{20}{20-1}\left(\frac{8.11-1.46}{8.11}\right)$$

$$1.05\left(\frac{6.65}{8.11}\right)$$

1.05 x 0.82

Kr20 = 0.861

Metadata Skills

$$\frac{20}{20-1}\left(\frac{7.50-1.60}{7.50}\right)$$

$$1.05\left(\frac{6.34}{7.50}\right)$$

1.05 x 0.85

Kr20 = 0.893

Copyright Skills

$$\frac{20}{20-1}\left(\frac{7.30-1.90}{7.30}\right)$$

$$1.05\left(\frac{5.40}{7.30}\right)$$

1.05 x 0.739

Kr20 = 0.776

APPENDIX H

Questionnaire Instrument on Application of Digitalization

Reliability Analysis Using Cronbach's Alpha

Scale: Application of Internet Skills

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded[a]	0	.0
	Total	20	100.0

Reliability Statistics

Cronbach's Alpha	N of Items
.824	6

Scale: Technology Infrastructure Skills

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded[a]	0	.0
	Total	20	100.0

Reliability Statistics

Cronbach's Alpha	N of Items
.790	7

Scale: Metadata Skill

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded[a]	0	.0
	Total	20	100.0

Reliability Statistics

Cronbach's Alpha	N of Items
.933	7

Scale: Copyright Skills

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded[a]	0	.0
	Total	20	100.0

Reliability Statistics

Cronbach's Alpha	N of Items
.875	5

Summary

S/N	SCALE	Coefficient
	Cognitive Test	
1	Internet Skills	.872
2	Technology Infrastructure	.861
3	Metadata Skills	.893
4	Copyright Skills	.776
	Questionnaire on Application of Digitalization	
5	Internet Skills	.824
6	Technology Infrastructure	.790
7	Metadata Skills	.933
8	Copyright Skills	.875
	OVERALL	**.853**

Appendix I

Raw scores Frequency Table

Possession of Internet Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	3	1.4	1.4	1.4
	20.00	1	.5	.5	1.9
	30.00	4	1.9	1.9	3.8
	40.00	6	2.8	2.8	6.6
	50.00	14	6.6	6.6	13.2
	60.00	13	6.1	6.1	19.3
	70.00	40	18.9	18.9	38.2
	80.00	48	22.6	22.6	60.8
	90.00	41	19.3	19.3	80.2
	100.00	42	19.8	19.8	100.0
	Total	212	100.0	100.0	

Possession of Technology Infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2	.9	.9	.9
	14.29	2	.9	.9	1.9
	28.57	4	1.9	1.9	3.8
	42.86	26	12.3	12.3	16.0
	57.14	64	30.2	30.2	46.2
	71.43	61	28.8	28.8	75.0
	85.71	37	17.5	17.5	92.5
	100.00	16	7.5	7.5	100.0
	Total	212	100.0	100.0	

Possession of Metadata Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	57	26.9	26.9	26.9
	20.00	52	24.5	24.5	51.4
	40.00	66	31.1	31.1	82.5
	60.00	26	12.3	12.3	94.8
	80.00	10	4.7	4.7	99.5
	100.00	1	.5	.5	100.0
	Total	212	100.0	100.0	

Possession of Copyright Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2	.9	.9	.9
	12.50	2	.9	.9	1.9
	25.00	4	1.9	1.9	3.8
	37.50	19	9.0	9.0	12.7
	50.00	31	14.6	14.6	27.4
	62.50	41	19.3	19.3	46.7
	75.00	41	19.3	19.3	66.0
	87.50	37	17.5	17.5	83.5
	100.00	35	16.5	16.5	100.0
	Total	212	100.0	100.0	

APPENDIX J

Frequency Table

Application of Internet skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	.9	.9	.9
	1.17	3	1.4	1.4	2.4
	1.33	2	.9	.9	3.3
	1.50	11	5.2	5.2	8.5
	1.67	7	3.3	3.3	11.8
	1.83	12	5.7	5.7	17.5
	2.00	16	7.5	7.5	25.0
	2.17	29	13.7	13.7	38.7
	2.33	27	12.7	12.7	51.4
	2.50	23	10.8	10.8	62.3
	2.67	24	11.3	11.3	73.6
	2.83	13	6.1	6.1	79.7
	3.00	11	5.2	5.2	84.9
	3.17	7	3.3	3.3	88.2
	3.33	14	6.6	6.6	94.8
	3.50	6	2.8	2.8	97.6
	3.67	5	2.4	2.4	100.0
	Total	212	100.0	100.0	

Application of Technology Infrastructural skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	34	16.0	16.0	16.0
	1.14	65	30.7	30.7	46.7
	1.29	49	23.1	23.1	69.8
	1.43	27	12.7	12.7	82.5
	1.57	13	6.1	6.1	88.7
	1.71	4	1.9	1.9	90.6
	1.86	6	2.8	2.8	93.4
	2.00	3	1.4	1.4	94.8
	2.14	3	1.4	1.4	96.2
	2.29	2	.9	.9	97.2
	2.43	4	1.9	1.9	99.1
	2.57	2	.9	.9	100.0
	Total	212	100.0	100.0	

Application of Metadata Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	30	14.2	14.2	14.2
	1.14	25	11.8	11.8	25.9
	1.29	33	15.6	15.6	41.5
	1.43	37	17.5	17.5	59.0
	1.57	27	12.7	12.7	71.7
	1.71	12	5.7	5.7	77.4
	1.86	13	6.1	6.1	83.5
	2.00	7	3.3	3.3	86.8
	2.14	10	4.7	4.7	91.5
	2.29	2	.9	.9	92.5
	2.43	2	.9	.9	93.4
	2.57	7	3.3	3.3	96.7
	2.71	4	1.9	1.9	98.6
	2.86	2	.9	.9	99.5
	3.29	1	.5	.5	100.0
	Total	212	100.0	100.0	

Application of Copyright Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	3	1.4	1.4	1.4
	1.40	7	3.3	3.3	4.7
	1.60	7	3.3	3.3	8.0
	1.80	9	4.2	4.2	12.3
	2.00	14	6.6	6.6	18.9
	2.20	23	10.8	10.8	29.7
	2.40	34	16.0	16.0	45.8
	2.60	32	15.1	15.1	60.8
	2.80	16	7.5	7.5	68.4
	3.00	20	9.4	9.4	77.8
	3.20	19	9.0	9.0	86.8
	3.40	19	9.0	9.0	95.8
	3.60	5	2.4	2.4	98.1
	3.80	3	1.4	1.4	99.5
	4.00	1	.5	.5	100.0
	Total	212	100.0	100.0	

APPENDIX K

SPSS Output

Research Question One

Descriptive Statistics

Status of University		N	Mean	Std. Deviation
Public	Internet_Skills	181	79.00	19.06
	Valid N (listwise)	181		
Private	Internet_Skills	31	70.00	18.62
	Valid N (listwise)	31		

Research Question Two

Descriptive Statistics

Status of University		N	Mean	Std. Deviation
Public	Technology_Infrastruture	181	67.56	18.56

	Valid N (listwise)	181		
Private	Technology_Infrastruture	31	58.53	17.44
	Valid N (listwise)	31		

Research Question Three

Descriptive Statistics

Status of University		N	Mean	Std. Deviation
Public	Metadata_Skills	181	29.17	24.45
	Valid N (listwise)	181		
Private	Metadata_Skills	31	27.74	16.87
	Valid N (listwise)	31		

Research Question Four

Descriptive Statistics

Status of University		N	Mean	Std. Deviation
Public	Copyright_Skills	181	70.99	22.47
	Valid N (listwise)	181		
Private	Copyright_Skills	31	61.69	18.24
	Valid N (listwise)	31		

Research Question Five

Descriptive Statistics

	Status of University					
	Public			Private		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation
I frequently update digital content such as blog or news with "Really Simple Syndication" (RSS).	181	1.94	.79	31	1.77	.76
I use online catalogue in accessing web resources.	181	2.15	.85	31	1.97	.80

I access different online databases with different search engines	181	2.99	.75	31	2.74	.82
I frequently chat and e-mail information on the internet	181	3.20	.74	31	2.97	.91
I exchange files as attachment, download, save and retrieve online files	181	2.52	.87	31	2.19	.95
I frequently perform digital referencing and publish online.	181	2.03	.84	31	1.55	.57
Valid N (listwise)	181			31		

Research Question Six

Descriptive Statistics

	Status of University					
	Public			Private		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation

I install digitization software in my library	181	1.15	.41	31	1.13	.43
I convert Microsoft office files and images to PDF, organize pages in PDF and export PDF files to word or excel	181	1.77	.77	31	1.71	.78
I apply digital image software to scan document and upload them into databases	181	1.22	.53	31	1.16	.37
I perform image editing to remove unwanted portion of a document before scanning	181	1.30	.59	31	1.16	.37
I apply digital image management software (DIMS) to manage large number of file documents	181	1.34	.57	31	1.23	.43
I perform the task of web linking of scanned resources	181	1.24	.51	31	1.19	.40
I customize web page layout design for my library	181	1.30	.57	31	1.19	.40
Valid N (listwise)	181			31		

Research Question Seven

Descriptive Statistics

	Status of University					
	Public			Private		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation
I apply description to file names	181	1.57	.80	31	1.23	.56
I apply standards such as AACR2 MARC using my library metadata schema	181	1.39	.61	31	1.19	.40
I bring together files that constitute digital collections in different sources	181	1.92	.90	31	1.77	.72
I frequently locate and together resources irrespective of their location	181	1.98	.88	31	1.84	.73
I apply metadata element like syntax to correct files	181	1.14	.38	31	1.03	.18
I publish collections on website, CD-ROM or DVD.	181	1.68	.78	31	1.55	.68
I frequently upload resources to my library website	181	1.17	.47	31	1.03	.18
Valid N (listwise)	181			31		

Research Question Eight

Descriptive Statistics

	Status of University					
	Public			Private		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation
I apply the principles of copyright exception to selection, collection and preservation	181	2.61	.79	31	2.58	.62
I guide against photocopying an entire work of an author	181	2.75	.77	31	2.48	.72
I apply the principle of " fair use" in protecting the interest of owner of work in my library	181	2.74	.67	31	2.68	.75
I apply precise citation for materials collected from a given source	181	2.45	1.01	31	2.55	.85
I apply the principle of "public domain" to colllection and preservation of resources	181	2.43	.88	31	2.16	.64
Valid N (listwise)	181			31		

Hypothesis One

Group Statistics

	Status of University	N	Mean	Std. Deviation	Std. Error Mean
Internet_Skills	Public	181	79.0000	19.05886	1.42056
	Private	31	70.0000	18.61899	3.34407

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Internet_Skills	Equal variances assumed	.052	.820	2.436	210	.01	9.00000	3.69398	1.71777	16.28223
	Equal variances not assumed			2.477	41.577	.01	9.00000	3.63329	1.66551	16.33449

Hypothesis Two

Group Statistics

	Status of University	N	Mean	Std. Deviation	Std. Error Mean
Technology_Infrastruture	Public	181	67.5612	18.55722	1.37935
	Private	31	58.5253	17.43982	3.13228

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Technology_Infrastruture	Equal variances assumed	.678	.411	2.526	210	.01	9.03582	3.57690	1.98459	16.08706
	Equal variances not assumed			2.640	42.497	.01	9.03582	3.42254	2.13124	15.94040

Hypothesis Three

Group Statistics

	Status of University	N	Mean	Std. Deviation	Std. Error Mean
Metadata_Skills	Public	181	29.1713	24.44673	1.81711
	Private	31	27.7419	16.87398	3.03066

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper

Metadata_Skills	Equal variances assumed	8.361	.004	.313	210	.75	1.42934	4.57075	-7.58109	10.43976
	Equal variances not assumed			.404	54.277	.68	1.42934	3.53366	-5.65440	8.51307

Hypothesis Four

Group Statistics

	Status of University	N	Mean	Std. Deviation	Std. Error Mean
Copyright_Skills	Public	181	70.9945	22.46553	1.66985
	Private	31	61.6935	18.23900	3.27582

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Copyright Skills	Equal variances assumed	3.473	.064	2.184	210	.03	9.30093	4.25916	.90474	17.69712
	Equal variances not assumed			2.530	47.086	.01	9.30093	3.67687	1.90437	16.69749