CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The development of any nation is largely dependent on quality of university education it offers. The universities are the center of higher education particularly in the nation Nigeria. The university involves in the production of knowledge and enables conducive environments for teaching and learning as well as research. The university as a knowledge body creates knowledge in different areas in the form of research, skill and certification. The university libraries grow alongside with their parent organisations asan essential academic parts of their parent organisations. Therefore, the university libraries are support systems set up to enhance promotion of the publication of research work, community services, as well as the teaching, learning and research functions.

Abdur-Rafiu and Opesade (2015) stress that as far as higher education is concerned; universities are identified as knowledge oriented organisations owing to their role as the hub of knowledge development and management. This has incited the development of the universitylibrary as a system supporting therealisation of the goals and set objectives of the university through provision of services that will prompt the development of human intellectual capability. Association of College and Research Libraries (2017) stresses that the goal of university libraries are to contribute to the realisation of the objectives of the university with regard to research, learning and teaching by acquiring materials essential to meet present and future information needs. University libraries also organise the materials in a way that permit and stimulate actively the utilisation of library materials and services by adapting them to meet the constantly changing needs of the university and society by extension, and contribute to the incorporation of local and international information resources in the university. The library does these through the provision of adequate information and services to support the objectives of the institution.

The university library provides a range of services that are made accessible to everybody who uses the library. The types of services provided to users by individual libraries are determined by the service objectives and philosophy of the parent institution. Services provided by university libraries include: reference services, lending services, exhibition and display, interlibrary loan services, reservation services, current awareness services, user education and

library orientation services, careful distribution of information services, literature search services, transfer services, translation services and extension and outreach services.

In order to effectively support the university in carrying out its objectives and goals, librarians are engaged to carry out their professional duties of meeting the information needs of students and staff.Librarians are employed to serve people by providing quality information resources access in either print or electronic formats. It is in the course of this that peoples' standard of living be improved, dreams actualised, freedom of expression enhanced, education realised, sound decisions made and executed, and information resources conserved for posterity (IFLA, 2012). The librarians are functionally involvedin developing virtual libraries which has enhanced the services rendered by the library(Swain, 2011). By actively doing these, thelibrarians will help in the extension of automatic indexing, data transmission, natural language processing, electronic imaging and numerous other allied technologies.

Adio (2010) points out that the librarians working in a university library collect, organise, and manage a vast collection of information materials needed to meet students' and member of faculty's needs. Librarians selects and maintains up-to-date publications such as multimedia CDs, computer database, newspapers, journals, books, audio cassettes, photographs, videos, etc, in their effort to satisfy the need of library users. The librarians in a universityclassifies, organises, and indexes books and other related materials in addition to answering students enquires, teaching the students on research skills, and guiding them to find the information they desire. The librarians use a diversity of materials in their daily schedule such asgovernment documents, newspapers, computers, books, and periodicals to provide information to library users. American Library Association (ALA) (2007) asserts that librarians perform a distinctive and very important function in the educational and learning process. ALA states further that librarians perform a research and teaching role in the way they officially and unofficially instruct students, and give professional advice to faculty members in their scholarly pursuits. Librarians are also involved in teaching and research function (Wijetunge, 2012).

In addition to the provision of services to users, training, scheduling duties of staff in the library, the librarians spend most of their time attending to queries raised by the users, disseminating information and teaching. At times, librarians work under stressful conditions, as there are frequently a number of tasks in succession at the same time so the librarians ought to be able to work under stress, stay organised and handle pressure. The librarians need to prepare for

teaching, committee work, and clearly express points of view, needs and ideas. The librarian must have methodological skills, work well under stress and must have excellent computer application knowledge (Nelson, 2016).

Kont and Jantson (2015) maintain that other activities of the librarians in the universities include: planning and establishing library for faculties, purchase and expenditure,identifying items purchased, ordering and receiving, cataloguing and training, and supervision of staff who work in the library. Besides, a librarian engages in answering students' and staff requests, complete searching and inter library loans and document from other libraries, providing audio visual services and maintenance of library equipment, entering all library resources or database, engage in information repackaging, translation services and other computer tracking forms (Adio and Ogunmodede, 2016). These responsibilities exhibited by librarians demand a higher degree of creativity on the part of librarian, so as to be able to perform their role effectively and efficiently. Librarians need to be creative because it takes a creative mind to showcase creativity.

Hassan, Anwar and Rafique (2014) define creativity as an act of bringing something new into existence. It is a novel idea that can be utilised to solve a problem. It is the capability to generate novel ideas for the accomplishment of organisational goals (Ologbo, Khalil and Eugene, 2015; Henriksen, Mishra and Mehta, 2016). Ilako and Ikoja-Odongo (2011) stress that every newly idea introduced in the library can be referred to as creativity and these ideas give room for problem solving. In the Nigerian university libraries, creativity could be used to measure performance at work. This is because the underlying purpose of human development is to make citizens of the society acquire creative and innovative thinking skills that will spur them to action in developing human capacity. The more imaginative and innovative someone becomes, the greater shall be his/her level of self-reliant to improve the value of his personal life, family, community, group, and the society (Akinboye, 2001).

Creative thinking is an essential human skill and resource. It is assumed that the greatest thing any nation can do is to support the development of her people to teach them how to be more creative and innovative (Akinboye, 2001). This is because the quality of human future is determined by the quality of thinking. Creativity helps human beings to obtain the most excellent experiences and resources. Librarians are not left out in this development. Creativity is the way of dynamic change, leap of progress and surprise that will propel library organisations, catapult

careers and generate potent growth of librarians as well as the library environment from where they discharge their professional duties.

The essence of creativity is the creation of new and functional ideas principally on the individual ground. It is the most essential and veritable skills needed to succeed in the 21st Century (Henriksen, Mishra and Fisser, 2016). Creativity is an experience that is mostly exercised at the individual level and it makes use of variables such as personality, motivation and expertise at the individual level (El Melegy, Mohiuddin, Boronico and Maasher, 2016). Hassan et al. (2014) reveals that some organisational structure like centralisation, formalisation and work-specialisation will negatively reduce employee creativity. Especially, the greater the centralisation in an organisational structure, the lower the employees' creativity, and that as formalisation increase in an organisation, it moderately leads to low employees' creativity.

Adeel and Pengcheng (2016) maintain that in the contemporary dynamic environment, creativity has become a fundamental drive that serves as key factor of organisational effectiveness. Therefore, oganisations strive to find ways to foster creativity so that they can distinguish themselves from competitors. Individual creativity is the base for all levels of creativity at organisations.Creative individuals hold a unique identity at their organisations and among their social circles. Creative individuals are competent enough to provide diverse and appropriate solutions to complex or routine problems (Adeel and Pengcheng, 2016), exchange their diverse pool of knowledge with their surroundings, use their diverse knowledge to provide solution to their surrounding and also share this diverse pool with others (Mueller and Kamdar, 2011). Creative personnel, through their unique competency, can find unique ways of thinking, and variety of solutions, which will help their organisation to create and maintain their distinctive position in competitive environment.

Adeel and Pengcheng (2016) report that because of the uniqueness of creativity to individual and organisation advantages in considerable areas, organisations are investing heavily on creativity development of their personnel. This is because creativity has become an important determinant of performance, success and survival for organisations. Creativity is not a common phenomenon in organisations, especially, libraries. By implication, not all personnel in the libraries are creative. Creative personnel in organisations due to their uniqueness in abilities, receive preferential treatment in organisations (Baucus, Norton, Baucus and Human, 2008) and in returns add distinctive value to their organisations (Vincent and Konchuki, 2015). Creativity

and social interactions are important parts of organisation (Zhou, 2008). Social interactions among personnel in organisation improve performance of creative individual. Therefore, when creative individuals in the organisation relate, the outcome will be creation of knowledge. It is to be noted here that during interaction, creation and sharing of knowledge would have been established among librarians.

Creativity is a phenomenon whereby something new such as an idea is formed. It is the ability to make new thing: device, method or artistic object to solve problems. It is related to the unexpected, surprising and impressive (Elisondo, Donolo and Rinaudo, 2013). Creativity of librarians is evident in services they render to library users, such as cataloguing and classification of library materials, selective dissemination of information, answering reference queries, information reparckaging, etc. The use of online cataloguing has positively affected the transition of manual cataloguing to copy cataloguing. Creativity has also made it possible for the library users to access some of the services render by the university library remotely. Library clientele can log into library website or individual portal to submit their reference queries, which within the quickest possible time can be attended to by the librarian in charge.

Similarly, Chunli and Jinmin (2013) stress that innovation is the execution of creativity to create a new product or service. Though creativity and innovation are not the same from the literature point of view, they are closely linked in their practical application. One can anticipate more creativity and innovation among librarians particularly in this dynamic environment, most especially when they share and use the knowledge acquired through effective collaborative effort and to combat challenges facing university libraries in this era of hostile economic challenges (Ilako and Ikoja-Odongo, 2011).

University libraries are confronted with serious challenges which have changed innovation from the stage of contemplation to necessity (Brundy, 2015). The researcher reiterated the fact that libraries globally, especially the university libraries, are operating in a climate of budget cuts and rising costs under a scarce resources situation. University library managers are inevitably bound to make astute decisions in relation to how innovations will be adopted and executed in their libraries. Brundy (2015) emphasised that the two fundamental factors critical for adopting innovation in academic libraries, especially university libraries, are changes in technology and declining budget. Furthermore, on the declining share that academic libraries are facing, Islam, Agarwal and Ikeda (2017) reports that the changes in technology

anddeclined university budgets have made innovation very essential. Lowry (2011) buttresses the fact that the trend of reduction of university library budgets is expected as a result of economic challenges such as financial crisis and economic recession that have resulted in budget cuts for several libraries.

Brundy (2015) submits that outside the challenges of financial incapacitation faced by most university libraries, other factors necessitating innovation are the pervasive and unrelenting technology impact on library collection and services. Islam, Agarwal and Ikeda (2015) maintain that university libraries across the globe are experiencing challenges of service maintenance and use and must expand amid indefensible costs, declining use of library collection, increased demand for new services and change into digital services. To adequately combat these arrays of challenges, innovation is inevitable.

Innovation is a process whereby the ideas generated are, filtered, captured, modified, funded, developed, clarified and eventually implemented or commercialised. Creativity is an enabler and enhancer of innovation.Innovation is a process of implementing a change in the way library operations are done. Though, libraries are overwhelmed in routines and regulations essential for protecting fair use,innovation is embedded in the use of technology and in the way librarian interacts. Therefore, innovation in libraries is also exemplifies in functioning routines for library effectiveness.

A model for library innovation developed by Rowley (2011) revealed that a strategy for successful innovation are leadership, innovative and creative teams, management ofinnovation portfolio, effective design and management of innovation processes, and enhanced innovation culture and capabilities.This idea of innovation portfolio is useful most especially when it occurs in the university libraries. When innovation occurs in a library, it may lead to other innovation, for instance, a service innovation may lead to collection management and budgeting innovation.

Similarly, the study conducted by Cervone (2007) on innovation in academic libraries found a strong association between system size and receptiveness to innovation. This implies that librarians with a large system tie will be more open to innovation.Jantz (2012) conducted a study using qualitative methods to explain the perspectives of some selected university librarians' perspectives on innovation and found that the librarians had a good knowledge of the innovation process in their respective libraries. Jantz reported that a library incentivised innovation using giving rewards on new ideas created and allocating budget towards identified innovative

projects. Strategy employed to achieve innovation in academic library are:developing leadership,specific purpose working groups, cross unit work and the promotion of professional associations participation.

Innovation application in libraries may revolutionalise the method of operation by librarians in university libraries. Library services that hitherto domiciled in the university libraries are now being accessed and enjoyed remotely by the users. The development of information technology and information explosion has made library users in the university environment to be more prone to select various information sources beside the library. Though this may be considered a major factor that can erode the functionality of librarians. Experience has proved that library users do not find most of the information sought through the Internet relevant to what they want. Therefore, the demand for services provided by the librarians is increasing day by day. Librarians are now providing online reference services on literature search and access, telephone reference services and e-mail reference service to their users (Chunli and Jinmin, 2011).

Other services provided by librarians in the digital age include the use of library blog that has become communication links between the library and her users for the reason that it is an interactive platform. Chunli and Jinmin (2011) report that information services provision by librarians are traditionally passive oriented. This is because most of the library users access the library resources from their websites. Therefore, university libraries should innovate traditional reference services and transit into knowledge services where librarians will directly participate in solving library problems. It is to be noted however, that, the library clients need in the digital age transcends documents and information but the changing information into products. Therefore, librarians must innovate to meet up with the users' changing needs.

Another area in which librarians can provide service innovation is in users' participation in the collection development, building partnership with other librarians and building partnership with vendor and commercial communities (Yeh and Watter, 2016). There are several ways which services innovation can be applied in the library. These include innovation in the entire library services that allows shift from general services to personalised services and innovation in funding through new partnership and seeking donation. Library can organise e-day events where information literacy can be taught. Digital lending service can as well be done as is the practice in United Kingdom (UK) where many libraries now offer e-book lending (Mori, 2017).

Similarly, Mori (2017) avers that academic librarians are using digital format to preserve their specialised collections and make them more accessible. For example, the foundation project at Cambridge University Library has digitised their early important collection in the field of religion and science which are now available and accessible to users.

Furthermore, university library can innovate in the areas of marketing library products and services. Konya (2013) defines marketing as the process of planning and execution of development, pricing and promotion and distribution of products/services and ideas to make interactions that satisfy organisational objectives. Marketing of library products and services aim at shaping the wants, demands and needs of the target patrons though designing and delivering of suitable products/services effectively for achieving organisational objectives. Patange (2013) maintains that marketing of library services and products is a novel area presently attracting the attention of researchers, market and the business scholars. Marketing library services was also defined by different authors in a variety of ways. Therefore, when a library markets its product and services, it will promote the partnership between the library and their host community.

Marketing of library services is aimed at providing information to users at the right place and time. The importance of marketing in libraries include: to compete favourably for clientele with other information providers, generate library fund, presents uniqueness of the service they provide; promoting librarians as trained and technologically information experts, and increase use of library services (Steadley and Gray, 2003). The importance of marketing library services in the present age is great, considering the development of librarianship as a profession. The needs for library marketing is very essential most especially when considering competitors like cybercafés and other information providers as well as changes in library resources.

In Nigeria, the concept of marketing of library and information products and services is new when compared with what is obtained in advanced and industrialised nations like United States of America (USA). Marketing approach is helpful to university libraries to boost their image and to attract additional users. It helps librarians to improve their innovative knowledge both within their organisations as well as a profession in the society. This concept needs to be adopted by librarians if they will weather the storm of challenges such as changes in learning programmes, ICTs impacts, decline budget and new methods of information provision (Ukwoma, 2014). Patange (2013) reports unwillingness of the university libraries in India to

utilise marketing principles. The author argues further that there was reaction that marketing is not appropriate for service oriented institution as library.

It should be noted however that acquisition of knowledge, processing and storage, retrieval and usage are actions demanding cost. Therefore marketing library services will not be out of place. Salami (2014) provides the following as the need for marketing library services in academic libraries: to help users develop skills in order to acquire information from other sources, achieve library objectives, identify information needs of users, enlighten the users on the relevance of library use, achieve high level of users satisfaction, compete favourably with other information providers, improve interpersonal relationship between librarians and users, provide conducive atmosphere for users to work and study and attracts donor and funding bodies to the library.

Marketing techniques in libraries services include: exhibition and display of new arrivals, good attitude of staff to users, librarians properly dressed, organising user education, allowing contributions from users in acquisitions process, creating library web page, organising library week, having representative in institutional functions, one on one discussion with users and advertising in print and electronic media.

Furthermore, librarians need to display their professionalism to create a change environment through innovation where library patrons can feel at home to enjoy services provided to their clientele. This can be done effectively in organisation through creation of new knowledge in the form of product and service. Nonaka, Toyama and Konno (2000) aver that knowledge creation is a continuous process through which one transcends the boundary of the old self into a new self through acquisition of new skills and knowledge.Knowledge creation is the first phase of knowledge management processes. Knowledge is being created continually in organisation because the interaction among people generates knowledge. Uriarte (2008) claims that for organisation to survive, they must create new knowledge, capture and use such to create a more attractive product or service.

Owing to the nature of today's markets, there is rising demand within university libraries to create knowledge, develop new concepts and generate novel ideas. Two factors: creativity and innovation, is very essential in determining viability of any organisation or group of workers. Knowledge creation will not be possible without creativity. This is because creativity is one of the vital traits needed to make the librarians more productive. Creativity requires proper

management, and if it is managed effectively, it can be utilised to realise different methods of doing things, faster way of accomplishing a tasks and easier paths to accomplish desired result (Uriarte, 2008).

Moodysson (2008) reveals that knowledge creation activities include brainstorming, problem solving, design and redesign, dissemination, protection and commercialisation. Brainstorming activities are connected to the sub-process of production of knowledge. It requires intense communication either through face-to face or e-meeting (conference meeting through electronic means) which is easier to handle both in geographic proximity as well as geographically distributed external partners. Oneof the most common method used to bring out creativity and innovation from an individual is brainstorming (Mitchell and Boyle,2010).Brainstorming make it possible to elicit the diversity of perspectives and mental sets that exists in the intellect of the participants through effective knowledge sharing. Proper management of brainstorming sessions will make it possible to create a multiple perception on a common problem. Therefore, if knowledge is created and not shared, its effect on organisational effectiveness will be limited.

Librarians, especially those working in the universities are knowledge creators (Witek, 2014). Librarians create knowledge in the form of research and scholarship. Witek (2014) describes an academic librarian as a professional who personally researches into bibliographic studies and information process and add to knowledge in the field of librarianship. Similarly, Chang (2015) argue that librarians in the universities teach, impact skills and knowledge to students and faculty members in a formal and informal ways, conduct research through which they contribute to development of knowledge useful to their profession and institution, and also required to work as part of the faculty and knowledge creators. Librarians' participation in the execution of meaningful services and outreach to their profession and local communities, particularly in the university campus wide committees equally qualifies them as knowledge creators and faculty members. Galbraith, Smart, Smith and Reed (2014) found that university librarians are publishing frequently in high-impact peer-review journals than academic librarians working in other tertiary institutions.

The value of research to librarians has been acknowledged in literature. Gillum (2010) remarks that possession of full theoretical knowledge is fundamental to librarianship and that their scholarly writing practice helps them to solve problem on daily basis. Taking a critical look

at this assertion, one will argue that research and scholarly publications of librarians in universities is one of the channels through which librarians create knowledge, both for the development of their professional association as well as for community or societal development. This affirms the role of research to librarianship. It also provide a platform for practicing librarians to critically think on their daily responsibilities and other research problems to be solved (Witek, 2014).

Hamzah, Hisham, Musa, Awang, and Hanipah (2014), in their study of knowledge profession by librarians in public universities of Malaysia, maintain that types of knowledge created by librarians include conference papers, journal articles, books, review, reports and article in magazine. Okonedo and Popoola (2012) also posit that librarians in public universities inSouthwest Nigeria create knowledge in the form of journal publication, books and chapter(s) in book, conference papers, patents, technical reports etc. Influence and encouragement among colleagues also play a significant role in promoting knowledge creation among librarians. Hamzah etal (2014) report that more than half of the population studied in Malaysia posits that they are greatly influenced by their colleagues to create knowledge in the form of writing.

Basically, knowledge created by individual or orgnisation are categorised into two, namely, tacit and explicit knowledge. Tacit knowledge is embedded in people, socially determined and related to daily practice (Liu, 2012). Explicit knowledge on the other hand is knowledge that is codified, refined and documented. Areas in which librarians can create knowledge include library software development, bibliographic compilation, digital reference services, web page design, translation services, cataloguing African and Nigerian information materials in online cataloguing, creation of password for information security, developing formula for budget preparation. Other areas where librarians can create knowledge are in designing of course curricula, indexing service, abstracting service, technical report writing as well as research paper writing.

Mutula and Mooko (2008) further describe knowledge creation as process of generating products and services such as software; online database, publications, websites, minutes of meetings, policy briefs, standards and practices,intranet, directories of expertise, , extranets and portals, domain know-how and knowledge centres. Singh (2005) states that creation of knowledge centres on the consequence of knowledge conversion where SECI models come to place. SECI models is geared towards the conversion of knowledge spiral, where tacit

knowledge are converted to explicit knowledge, which are later converted from tacit to tacit, explicit to tacit and the conversion of explicit to explicit knowledge.

The findings of Hamzah et al (2014) reveal that the culture of creating knowledge among librarians in Malaysia is still very low. This is because the stronger the culture of knowledge creation, the more encouraged librarians will love to create knowledge either through practice or by writing. The organisations that librarians work with also have a major role to play if librarians will create knowledge. Conducive atmosphere should be provided where librarians can fully and conveniently create or co-create knowledge among themselves. The success story of knowledge creation can not be completed until such created knowledge finds expression among colleagues in the library through effective knowledge sharing.

Knowledge sharing is a practice where personal knowledge in organisation is mutually exchanged to jointly produce new knowledge (Akparobore, 2015). Tan, Lye, Ng, and Lim (2010) saw knowledge sharing as the activity of exchanging value, insight, information, and ideas about the observation among two or more people to agree or disagree. The phenomenon mayinvolve librarians working in the university libraries. Knowledge sharing involves bringing knowledge and receiving knowledge or otherwise. Librarians with inadequate knowledge cantake advantage of knowledge sharing to be well informed (McAdam, Moffett and Peng, 2012). This implies that each worker can gain knowledge from the practices and experiences of the other under an enabling atmosphere of knowledge sharing.

Sharing knowledge enables individual to communicate and learn from one another.Therefore, knowledge is shared among librarians through channels such as regular formal and informal meetings, fora, discussion groups, problem solving sessions. The use of Information and Communication technologies (ICTs) can also facilitate such interaction. These include: e-mail, intranets, the Internet, discussion forum and many others. Nassuora (2011) lists knowledge sharing technologies to include: e-mail, internet, database technologies, content management systems, decision support systems, groupware software and online discussion forum. Other knowledge technologies are video conferencing, web conferencing, enterprise information portals, document management systems, data warehousing, taxonomy generator, learning management systems, mobile technologies, audio and video message, multimedia technologies, blogs, etc.

Lee (2000) stresses that librarians' knowledge and experiences are critical resources of every library and ought to be cherished and shared. This establishedthat knowledge is at present regarded as the main asset for the personal growth of the librarians through their research output. This is because sharing knowledge permit direct access into the knowledge base of individual as well as knowledge tank of the organisation (Yaghi, 2011). Zamiri and Baqutayan (2012) opineknowledge sharing as the indispensable components of the knowledge management practice which entails exchange of information and knowledge transfer among librarians.

Jessica, Cheng and Lau (2008) maintain that knowledge is now an important resource especially in the era of new economy. Similarly, the discovery of this knowledge oriented economy has allowed placing emphasis on knowledge management activities (Abdur-Rafiu and Opesade, 2015). Knowledge sharing is therefore considered as the most crucial aspect of knowledge management activities (Obrenovic and Qin, 2014). The knowledge sharing of workers has mostly been studied by researchers in information management, organisational behaviour, knowledge management and recently, librarianship. Mavodza (2010) states that librarians in Metropolitan College of New York share knowledge through the use of Web 2.0 like Twitter, facebook, and You Tube among themselves as well as with library users. Onifade (2015) in a survey of knowledge sharing among librarians in Nigeria states that librarians do not really share knowledge among one another. This conclusion was reached because knowledge sharing was not formalised among the librarians.

Librarianship is a user-centered profession. All the professional duties of librarians revolve around the library clientele, be it staff, students or other researchers. Therefore, sharing knowledge requires a different approach and the combination of information and human systems to reduce the knowledge gap. Singh (2005) posits that knowledge sharing requires correct mindset that appreciates knowledge creation, learning, thinking and the use of knowledge. Maponya (2004) conducted a study on practices of managing knowledge in academic libraries in South Africa and reported that knowledge is shared informally by the librarians within the library. The study also found that although the library personnel shared knowledge to some extent, however, there was no systematic knowledge sharing among professional library staff. The result of the same study from the University of KwaZulu-Natal, Pietermaritzburg libraries, South Africa found negative response to knowledge use among professional librarians.

Alan (2011) explained knowledge use as the capacity to put knowledge into practice in an atmosphere that supportsexperimentation and interaction.Choo (2003) opines thatknowledge use wields a greater influence in evaluating and adopting new knowledge. Therefore, knowledge use is very crucial to work performance especially with regards to creativity and innovation of librarians in any university system. It is to be noted that if knowledge is only stored in the brain of employees without being shared and utilised, it will lose its value to an organisation. This is also applicable to library as an organisation. Therefore, if a library can encourage the culture of knowledge sharing, it will boost knowledge creation and increase knowledge use among librarians.

Librarians through their training and skills can organise knowledge before making them accessible to library clientele through cataloguing and classification. Che-Rusuli, Tasimin and Takala (2012) stress that one way to realise this is by engaging knowledge management practices to produce, share, capture, and utilise knowledge to accomplish the goals of the library. To do this, one may need to apply methods and tools necessary to achieve the desired results on knowledge management. Daneshgar and Parirokh (2012) aver that due to big volume of information and knowledge that academic libraries needs to manage, it is important for librarians to employ analytical tools necessary to manage conceptual models and innovative services. Che-Rusuli et al (2012) maintain that instead of adopting a highly technology focused approach to knowledge management process in libraries, most especially, university libraries, pre-existing people, technology and library management approach will be best suitable.

Mavodza and Ngulube (2011a) in their empirical analysis on the utilisation of knowledge management practices in an academic library in South Africa stress that among ways by which library users can utilise Web 2.0 functionally include the use of Online Public Access Catalogue (OPAC). This will assist the librarians to have records of their preference to use and a social networking account such as Facebook, Twitter, Myspace and other social media platforms. They further stressed that the library should use interactive workspaces and collaborative technologies available to create and share knowledge and expertise.

However, the fact that creativity and innovation by librarians is declining demands an urgent steps to address the menace. University administrators and library managers have invested heavily on personnel development through training and retraining exercise of their employees for skill acquisition with the aim of improving performance and service delivery. These efforts could

only be justified if the level of creativity and innovation of librarians is increased. Moreover, if the level of creativity and innovation of librarians increase, the level of their performance and service delivery will also increase. Creativity and innovation by librarians may continue to be obscure unless some aspects of knowledge management activities and phases are applied, among which are knowledge creation, knowledge sharing and knowledge use. Therefore, if likely impediment to creativity and innovation like knowledge creation, sharing and use are adequately addressed, there may be an increase in idea generation and implementation among librarians in the universities. Evidence from extant literature has shown that there are inhibitors to creativity and innovation by librarians. From the foregoing, there is a need to investigate knowledge creation, sharing and use as predictors of creativity and innovation by librarians in the federal universities in Nigeria.

1.2 Statement of the problem

Creativity and innovation are important in any organisation. They are fundamental to how organisations develop competitive advantage over anothers. Any organisation that will thrive well must pay serious attention to this matter. This account for why organisations invest heavily on how their employee will be more creative and innovative in order to enhance their work performance. Librarians' work revolves round acquisition, processing, organisation and dissemination of knowledge to satisfy the information needs of library patrons.

Nonetheless, it has been discovered through preliminary investigations and extant literature that creativity by librarians in the universities is low, which has in turn affected the level of their innovation. The reason may be linked with the routine pattern of delivery services rendered by the librarians. Knowledge creation, sharing and use have been shown to be positively related to how creativity of personnel in organisation are influenced. When creativity is enhanced, it could affect level of innovation. Similarly, when knowledge is created and shared but not used among librarians, it could impede their level of creativity and innovation. However, the fact that creativity and innovation appear to be low among librarians create a serious concern to the university administrators and library managers. This is against the background that large sum of money is spent on salaries and emoluments to librarians in Nigeria. Therefore, can one explain the creativity and innovation of librarians in federal universities in Nigeria from the point of view of their level of knowledge creation, sharing and use?

Empirically, knowledge sharing has been shown to be positively related to a number of pertinent organisational variables which include innovation, profitability and organisational performance. Literature on knowledge creation and use indicate that researches were conducted on theoretical basis with little or no empirical evidence from Library and Information Science (LIS) points of view. Only a few studies seem to have investigated influence of knowledge management practices on organisational performance in manufacturing industry and knowledge sharing, organisational culture as factors affecting organisational efficiency in libraries in Nigeria. However, none of the studies seem to have focused its attention exclusively on how knowledge creation, sharing and use could predict creativity and innovation of librarians in the federal universities in Nigeria. Therefore, this is a gap in research that the current study has come to fill.

1.3.Objectives of the study

The major objective of the study is to determine how knowledge creation, sharing and use predict creativity and innovation of librarians in federal university libraries in Nigeria.

The specific objectives of the study are to:

i. ascertain the level of knowledge creation by librarians in federal universities in Nigeria;
ii. identify the types of knowledge created by librarians in federal universities in Nigeria;
iii. establish the level of knowledge sharing by librarians in federal universities in Nigeria;
iv. identify channels of knowledge sharing by librarians in federal universities in Nigeria;
v. ascertain the level of knowledge use by librarians in federal universities in Nigeria;
vi. discover the level of creativity of librarians in the federal universities in Nigeria;
vii. determine the level of innovation of librarians in the federal universities in Nigeria;
viii. determine the relative contribution of knowledge creation, sharing and use to creativity of librarians in federal universities in Nigeria;
ix. determine the relative contribution of knowledge creation, sharing and use to innovation of librarians in federal universities in Nigeria;
x. determine the contribution of knowledge creation, sharing, use, creativity and innovation on work section of librarians in federal universities in Nigeria;
xi. identify the relationship between knowledge creation and creativity of librarians in federal universities in Nigeria;
xii. find out the relationship between knowledge creation and innovation of librarians in

federal universities in Nigeria;

xiii. determine the relationship between knowledge sharing and creativity of librarians in federal universities in Nigeria;

xiv. ascertain the relationship between knowledge sharing and innovation of librarians in federal universities in Nigeria;

xv. find out the relationship between knowledge use and creativity of librarians in federal universities in Nigeria;

xvi. establish the relationship between knowledge use and innovation of librarians in federal universities in Nigeria;

xvii. determine the relationship between knowledge creation and sharing of librarians in federal universities in Nigeria;

xviii. find out the relationship between knowledge sharing and use of librarians in federal universities in Nigeria;

xix. establish the relationship between knowledge creation and use of librarians in federal universities in Nigeria; and

xx. determine the relative contribution of knowledge creation, sharing and use to the prediction of creativity of librarians in federal universities in Nigeria.

xxi. establish the relative contribution of knowledge creation, sharing and use to the prediction of innovation of librarians in federal universities in Nigeria.

1.4 Research questions

To achieve the identified objectives of the study, the following research questions are raised:

i. What is the level of knowledge creation by librarians in federal universities in Nigeria?
ii. What are the types of knowledge created by librarians in federal universities in Nigeria?
iii. What is the level of knowledge sharing by librarians in federal universitiesin Nigeria?
iv. What are channels of knowledge sharing by librarians in federal universities in Nigeria?
v. What is the level of knowledge use by librarians in federal universities in Nigeria?
vi. What is the level of creativity of librarians in federal universities in Nigeria?
vii. What is the level of innovation by librarians in federal universities in Nigeria?
viii. What is the relative contribution of knowledge creation, sharing and use to the prediction

of creativity of librarians in federal universities in Nigeria?

ix. What is the relative contribution of knowledge creation, sharing and use to the prediction of innovation of librarians in federal universities in Nigeria?

x. What is the contribution of knowledge creation, sharing, use, creativity and innovation on work section of librarians in federal universities in Nigeria?

1.5 Hypotheses

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

1. There is no significant relationship between knowledge creation and creativity of librarians in federal universities in Nigeria.
2. There is no significant relationship between knowledge creation and innovation of librarians in federal universities in Nigeria.
3. There is no significant relationship between knowledge sharing and creativity of librarians in federal universities in Nigeria.
4. There is no significant relationship between knowledge sharing and innovation of librarians in federal universities in Nigeria.
5. There is no significant relationship between knowledge use and creativity of librarians in federal universities in Nigeria.
6. There is no significant relationship between knowledge use and innovation of librarians in federal universities in Nigeria.
7. There is no significant relationship between knowledge creation and sharing of librarians in federal universities in Nigeria.
8. There is no significant relationship between knowledge sharing and use of librarians in federal universities in Nigeria.
9. There is no significant relationship between knowledge creation and use of librarians in federal universities in Nigeria.
10. Knowledge creation, sharing and use will not significantly predict creativity of librarians in federal universities in Nigeria.
11. Knowledge creation, sharing and use will not significantly predict innovation of librarians in federal universities in Nigeria.

1.6 Scope of the study

The study covered knowledge creation, sharing and use as predictors of creativity and innovation by librarians in federal universities in Nigeria. Other phases of knowledge management like knowledge capture, knowledge mapping and knowledge audit were not considered as part of this study because they can not produce the expected result this study is aiming to address. The study was carried out in the forty (40) federal universities inNigeria as at December; 2016. The universities focused in this study are dispersed across the six geo-political zones in Nigeria. Their choices was premised on ownership status i.e as federal institutions, they are expected to be enjoying adequate funding than the state and privately owned universities. This ought to have provided a conducive atmosphere for exhibiting creativity and innovation.

The study involved librarians only. Other staff like library officers, technologists, computer scientists and administrative staff working in those libraries were not part of the study. The librarians in this study are holders of bachelor degree in library and information science, or holders of bachelor degree in any subject, in addition to master degree in library and information science, or holder of postgraduate diploma in librarianship and doctor of philosophy (Ph.D.) in library and information science working in the federal universities in Nigeria. This is because they are the major stakeholders in the library operations and are considered as core elements as far as professional practice in librarianship is concerned.

1.7 Significance of the study

The study is significant in helping the librarians in identifying the types of knowledge created, shared and used in Nigerian federal universities. The application of the outcome of the study would improve creativity and innovation of librarians for better work performance. The result of this study, when disseminated, would also encourage librarians to build team spirit through knowledge sharing to enhance their skills acquisition which will eventually improve the library effectiveness.

The study is also expected to assist the library management in the formulation of policies that will positively influence the creative and innovative abilities of the librarians in the discharge of their duties. The study would also produce useful information to both the university managements and library administrators on how to effectively manage librarians' knowledge and

to create conducive atmosphere for knowledge sharing to enhance their creative and innovative abilities.

In addition, the library users would benefit in the study through the provision of quality services that would be provided by the librarians. The study will enlighten university management on the need to formalise knowledge sharing hours in library practice among librarians to prevent knowledge loss that always arise when there is death or sudden transfer of personnel that serve as knowledge tank in the libraries. The study will help library managers to organise training and workshop on creativity and innovation for the librarians. The outcome of this study has added to the existing literature on knowledge management applications in university libraries and further creates research in library management.

Furthermore, this study would be useful to regulatory body like The Nigerian Library Association (NLA), Librarians' Registration Council of Nigeria (LRCN) and National Universities Commision (NUC) to make appropriare policy and framework for the librarians on training and retraining of librarians on the application of knowledge management activities to creativity and innovation.

1.8 Operational definition of terms

The following terms are operationally defined as used in this study:

Creativity: Ability to originate novel, useful ideas and solutions to library practices by librarians working in the federal universities, Nigeria. It is an act of generating new idea capable to solve problem in library environment.

Innovation: This is implementation of novel ideas to create new service or product, i.e. turning the idea to sellable product e.g. marketing library services, and retooling traditional library services.

Knowledge creation:this is actionable information, ideas, expertise, skills, lessons learnt, insights etc. created, generated, acquired, and owned by individual librarian in university libraries. A phenomenon whereby an employee creates a new product, services or solution that has some kind of value.

Knowledge sharing: The proactive way of making available the personal knowledge (both tacit and explicit) acquired by a librarian to professional colleagues for personal and professional development.

Knowledge use: This refers to the productive deployment and application of actionable information, ideas, expertise, skills, lessons learnt and insights in the production process among librarians in the federal universities.

Librarians: These are professionally qualified staff with the least qualification of Bachelor degree in library and information science or those who have a first degree in other disciplines with master degree in librarianship in federal universities in Nigeria

University library: This is the library attached to university as an integral part to achieve the objective of teaching, learning and research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This sectiondiscussed broad and critical literature that provides information on knowledge creation, sharing and knowledge use as predictors of creativity and innovation of librarians in federal universities in Nigeria. A review of some of the past works on the variables of study has provided a framework for this investigation. The literature review was done under the following subtitles:

2.2 Knowledge creation by librarians in universities

2.3 Knowledge sharing by librarians in universities

2.4 Knowledge use by librarians in universities

2.5 Creativity of librariansin universities

2.6 Innovation of librarians in universities

2.7 Knowledge creation and creativity of librarians in universities

2.8 Knowledge creation and innovation of librarians in universities

2.9 Knowledge sharing and creativity of librarians in universities

2.10 Knowledge sharing and innovation of librarians in universities

2.11 Knowledge use and creativity of librariansin universities

2.12 Knowledge use and innovation of librarians in universities

2.13 Knowledge creation and sharing by librariansin universities

2.14 Knowledge sharing and use by librariansin universities

2.15 Knowledge creation and use by librariansin universities

2.16 Theoretical framework

2.2Knowledge creation by librarians in universities

The general concern in international development since1950s has been how knowledge can be created, mobilised, shared, and use to improve human condition (International Fund for Agricultural Development, 2012). This is because knowledge had become the most important factor determining standards of living.Knowledge is a unique and valuable asset entrenched in the mind of people and organisational processes that can be used to attain a competitive advantage (Sial, Zulfigar and Habib, 2014).The critical factor determining change and innovation in organisations is knowledge and it is perceived as the main and most important positive feature in innovative viable atmosphere most especially in the industrialised world (Matin, Nakhchain, and Kashani, 2013). The definition of knowledge varies and it is subject to the perspectives with which it is being applied. Knowledge is closely related to words such as facts, information, intellects, know-how, thoughts, instincts or intuitionswhich all depend on the angle with which they are used (Gao, Meng and Clarke, 2008). Knowledge is thus defined as personal credence that increases an organisation's aptitude for efficient exploit (King, 2009).

Knowledge that is needed in organisation for business activities can be facts, opinions, thoughts, theories, skill, ethics, professional insight and instinct (Mitri, 2003 cited in Popadiuk and Choo, 2006). Knowledge is needed to present a structure for correct evaluation and incorporation of novel incident and ideas (Davenport, 2013). Omotayo (2015) saw knowledge as insights, understanding and technical know-how that resides with individuals. It is a critical resource determining the individual and organisational development. Gao, Meng and Clarke

(2008) categorised human knowledge into 'explicit' and 'tacit' knowledge, this has been widely held in knowledge management literature (Tasmin, Che Rusuli, Talaka and Norazlin, 2012; Park, Ventinsky and Becerra, 2015).

Tacit knowledge in the organisation was described in literature as personal knowledge used by individual members of the organisation to excecute their works. It is embedded in practice, thoughts and feelings in a particular environment (Mutula and Mooko, 2008). Conversely, explicit knowledge is codified and can be articulated in fomal language, shared through sorting of data, and can be stored (Jia, SonGen and Shi, 2012). Bhatt (2001) identifies five phases in knowledge management. These are: knowledge: creation, validation, presentation, distribution and application. Tasmin, Che Rusuli, Talaka and Norazlin (2012) on the other hand identify six knowledge management phases. They are: knowledge: creation, acquisition, capture, sharing, record and preserving.

Knowledge creation is the organisational ability to develop the new and useful ideas for solving problems. Nonaka and Toyama (2007) posit that knowledge creation depends on an enabling counteract of both explicit and tacit knowledge. Mutula and Mooko (2008) point out that the process of knowledge creation generates products and services such as software, online databases, publications, websites, minutes of meetings, policy briefs, intranet, extranets and portals, knowledge centers, domain know - how etc. Knowledge are created through training, learning by doing and problem solving which will eventually translate to creating new goods and services. Creativity and innovation is fundamental to this process as well as motivation, inspiration and experimentation. Therefore, the key elements in knowledge creation are creativity and innovation.

When knowledge is created, the format with which it is packaged is also very important. Knowledge packaged is methods, tools and techniques for formalising experience and making it available in the form of product and services. Srinivas (2007) and Mutula and Mooko (2008) identifies various formats or products in which knowledge can be packaged. They include alerts, abstracts, bulletins, announcements, bibliographies, indexes, policy beliefs, catalogues, best practices, brochures, books, expert systems, charts, databases, diaries, commentaries, annotations, journals, metadata (i.e. hyperlinks), blogs, models, pamphlets, posters, slides, standard practices, directories of expertise, intranets, domain know-how, portals knowledge

centers, extranets and customer profile. The intention of packaging created knowledge is to aid its communication, increase its understanding and uses.

One basic function of the organisation is to create a conducive atmosphere that would foster knowledge creation at personal or organisational levels (Nonaka and Takeushi, 1995). The authors point out that articulating and organisational intention is the only enabling condition to realise these through expression of knowledge mental picture which enable the organisation to evaluate the importance and expediency of the new knowledge. Similarly, individual and group autonomy is a major prerequisite for knowledge creation. This can be done by encouraging individual librarian to go halves information and act personally as far as situation permit. Singh (2005) stresses that application of knowledge management in libraries suppose to pay attention to creating knowledge base, effective development of research, through sharing and exchange of knowledge among library personnel and patrons, training library personnel, speed up the process of explicit knowledge into implicit knowledge and realising its effective distribution..

Tacit information creation is a continuous activity which aims at sharing tacit knowledge and building mutual understanding (Balogun and Adetula, 2015). Explicit knowledge on the other hands is discrete. It is documented in proceedings of the earlier period such as libraries, documentation and databases. Creation of knowledge is a critical and fundamental aspect of managing knowledge (Dul, Ceylan, and Jaspers, 2011). This is also essential for the continued existence of any organisation, because this phenomena occurs take place all through daily preoccupations, be it at employment arena or in community setting. Knowledge creation appears in diverse forms, either during formal training or discussing with people of related interests.

Nonaka (1994) points out that the procedure of knowledge creation in association incorporates socialisation, internalisation, combination and externalisation. In the first place, there is a method of knowledge change that empowers us to change over implicit information through connection between people. One significant point to note here is that an individual can procure implicit information without language however through perception. This is appropriate to disciples who work with their mentors and learn craftsmanship by perception, impersonation, and practice. So also, in a business situation, hands on preparing utilises a similar standard to exchange information, in this manner, the way to gaining tacit information is understanding. Without some type of shared understanding, it is incredibly hard for individuals to share every

others' reasoning procedures. This procedure of making inferred information from shared experience is alluded to as socialisation.

The second method of knowledge conversionas indicated by Nonaka (1994) includesthe utilisation of social procedures to consolidate various groups of unequivocal learning procured by people. People trade and consolidate information through such trade instruments as gatherings and phone discussions. The reconfiguring of existing data through the arranging, including, re-ordering, and re-contextualising of express learning can prompt new information. Present day computer frameworks give a realistic model. This procedure of making express information from unequivocal learning is known as combination.

The third and fourth methods of information change identify with examples of transformation including both unsaid and unequivocal learning. These transformation modes catch the possibility that implicit and express learning are correlative and can grow after some time through a procedure of shared connection. This communication includes two distinct tasks: One is the transformation of implied knowledge into express information called externalisation. The other is the change of express information into implied knowledge, which has a few likenesses with the customary idea of learning is referred to as internalisation

Knowledge is created through discussion (Laukes, Silverstein, Nicholson and Marshall, 2007). Bratianu and Orzea (2010) posit that the notion of knowledge creation through conversation dated back to Plato and Socratic method. The library serves as an arena that promotes conversations, serves as documentation centres and encourages future discussions. Kulakli and Mahony (2014) stress that knowledge creation is an uninterrupted procedure of relationship of tacit and explicit knowledge among individuals and organisation which will eventually lead to knowledge sharing. Therefore, knowledge creation has a connection with knowledge sharing because it is knowledge that is created that can be shared.

2.3 Knowledge sharing by librarians in universities

Knowledge sharing is a procedure by which an individual offer his or her insight: mastery, knowledge, or comprehension in an unsaid or express arrangement to a beneficiary (Ford and Staples, 2010). Knowledge sharing includes exercises of spreading information starting with one individual then onto the next, to a gathering of individuals, or to the entire association. As per Cyr and Choo (2010), learning partaking in association might be seen as the

conduct by which an individual deliberately furnishes different individuals from the association with access to his or her insight and encounters. Information sharing incorporates a wide scope of practices that are intricate and multi-faceted. Subsequently, learning is a procedure that interfaces the individual fields of information to the authoritative fields of learning. When individuals wouldn't share information, hoarding will be the order of the day (Cyr and Choo, 2010; Ford and Staples, 2010). Knowledge sharing is a willful procedure however it relies upon numerous individual and hierarchical variables, which may animate or hinder it (Cyr and Choo, 2010; Ford and Staples, 2010; Sanchez., Sanchez, Collado-Tuiz and Cebrain-Tarrason, 2013).

Knowledge sharing is critical to librarians in university libraries. Knowledge sharing empowers workers to share their understanding and encounters so as to permit quick, productive and successful arrangement of information applications to their clients (Onifade, 2015). Knowledge sharing includes dispersing data, qualities and thoughts regarding a phenomenon between two gatherings either to concur or deviate (Tan, et al. 2010). Hence, to share learning, as indicated by Parekh (2009), signifies to learn, comprehend, broaden and rehash the data, the thoughts, the perspectives and the assets with one another, associated with, on a particular ground. As per Saha (2015) the achievement of information sharing, that is, the manner by which learning is utilised among administrators, is professed to expand upon the sum and nature of communication between librarians, just as upon issues identified with the hesitance to share information, and the eagerness and capacity to utilise knowledge of others

Ilako and Ikoja-Odongo (2011) report that the Makerere University library staff in Uganda freely disseminates theirpersonal know-how with other librarians remotely, specifically with Southern Sudan in the Juba Library Project (JULAP). He revealed that Educating Librarians for the Future (EDLIB) venture was begun in 2010 to suit different administrators around Southern Sudan where the job of the bookkeeper is fundamentally to give the specialized and handy abilities to staff from Sudan. It was reported that about 30 librarians were trained under the project on the essentials of knowledge sharing.

Pasher and Ronen (2011) posit that in any organisation, sharing knowledge must overcome certain barriers before it can succeed. Knowledge sharing turns out to be right around a characteristic procedure in networks of training. A people group of training can be characterised as a gathering of individuals who share a specific movement for all intents and purpose, and as an outcome have some basic learning, a feeling of network personality, and some

component of covering esteems (Hislop, 2005). In spite of the fact that networks of training may enter in strife with the formal settings of associations, because of their high learning absorptive limit, information directors support their arrangement inside their associations so as to build the dimension of advancement (O'Dell and Hubert, 2011). Consequently, setting up networks of training is a down to earth approach to oversee information as a benefit, similarly as organisations will oversee other basic resources.

Okonedo and Popoola (2012) studied knowledge sharing andutilisation of librarians in Nigeria, they state that librarians regularly share information about new patterns in librarianship and that they use experience picked up in discovering answer for the issues they experience at work.The study by Apolinario, Eclevia, Eclevia, Lagrama and Sagun (2014) on librarian as researcher and knowledge creator found journal article as the most research findings that serves as channels through which librarian in Philippine shared knowledge.

Knowledge sharing enables librarians to tackle issues, adapt new things and advance understanding (Boateng, Agyemang, Okoe and Mensah, 2017). Library workers can gain from one another and derive advantage from new information and advancement by each other. Also worthy of note is that workers who share their learning are in every case progressively beneficial and bound to make progress on their occupations than specialists that don't (Anna and Puspisatari, 2013). Librarians by method for sharing their insight, experience, considerations and convictions commonly build up their normal comprehension. The best consequence of utilising information sharing practices is to improve laborers' aptitudes and learning which thus expands specialists effectiveness and profitability (Pearisasamy, 2009). Those with constrained learning profit by the benefit of information contribution in associations. Pearisasamy (2009) further clarifies that information sharing has helped librarians gains from the encounters and practices of others and furthermore has expanded workers output in the library association.

Knowledge sharing in the midst of community learning makes all members gain as far as positive learning result in addition to accomplish more in helpful cooperation when contrasted with individualistic dealings. Consequently, to accomplish knowledge adequacy, personal information should be shared (Akparobore, 2015). To guarantee a free progression of information, librarians must share their insight. Without this, there will be no free progression of learning and this will prompt data accumulating (Yang, 2004). In this way, a great deal of accentuation on instructing librarians who are solid and steady to take part a viable job

andknowledge society is necessary in view of the fact that librarians are the major thrust for instructive development and the evolution of information. Laukes, Silverstein and Nicholson (2007) set that convincing sharing of knowledge is one of the difficulties that are confronting librarians, most especially in university libraries.

Fari (2015) studied influence of knowledge sharing on academics; with 6 universities in Nigeria and South Africa as case study, the result showed that academics in both countries frequently shared knowledge on how to mentor students, 86.3% Nigeria and 100% South Africa academics regularly shared knowledge on seminars, workshops and conferences. On regularity of utilising ICT for sharing knowledge, 100% Nigeria and South Africa academics maintained that they often utilised mobile phones, computers and the Internet for sharing knowledge. Eze (2016) states that Web 2.0 technologies is another medium through which knowledge is being shared among professionals.

Decker, (2014) places that the term Web 2.0 was first referenced by DiNucci (1999) and was promoted by Tim O'Reilly (Graham, 2005). Sharma (2008) depicts probably the most noteworthy attributes of Web 2.0 as client focused structure, publicly supporting, coordinated effort, influence decentralisation, dynamic substance, and rich client experience. Danciu and Grosseck (2011) considered social parts of Web 2.0 innovations in educators' point of view. Results confirmed that Google locales, blogging, microblogging, long range interpersonal communication, wikis, Google books, scholarly journal, media data, TED meetings, TV, radio, smaller scale web journals, other informal communication have been utilised as information sharing methods.

2.4 Knowledge use by librarians in universities

The aim of KM is to improve personal abilities using individual and associations' knowledge assets. These assets incorporateexperience, abilities, capacities, schedules, standards just as innovations (Zhang, 2008). Knowledge utilisation implies the viable arrangement of individual and hierarchical information in the generation procedure. Indeed, it is the embodiment of overseeing knowledge. The effective distinguishing proof and circulation of basic knowledge does not guarantee its every day use. It ought to be noticed that without reliable use, there is a high likelihood that new learning framework will rot in quality; and whatever venture made on the obtaining of such information will be lost.

Attafar, Soleimani, Shahnazari and Shahin (2012) report the result of investigating the condition of knowledge management compound in libraries of Isfahan that the effectual use of organisational knowledge through recent paraphernalia constituted a menace confronting libraries. Mavodza and Ngulube (2011) contend that a portion of the manners by which library clients can utilise the usefulness of web 2.0 incorporate the utilisation of the Online Public Access Catalog (OPAC) labeling, with the goal that they can have a lot of records of their inclination to utiliee, effectively open in a label cloud, or have an interpersonal organisation record, for example, Twitter, Facebook, Myspace or Delicious. They reason that the library should utilise community oriented workspaces accessible, for example, wikis, to discover, offer and use knowledge and skill.

Question point (QP), a practically reference administrations with a learning premise, could fill in as an information the board framework. The QP has numerous highlights, including talk reference, issue following instrument, detailing ability and information base worked from a database of inquiries and answers finished can be viewed as an apparatus for learning the executives reference benefits in libraries (Ralph and Tijerino, 2013; de Bem and Coelho, 2013).

The utilisation of knowledge attached a broad range of benefit to librarians. Cataloguers have utilised records shared through aggregate indexing, utilising the bank of different organisations, for example, Library of Congress (LC), Online Computer Library Center (OCLC), among others (Ralph and Tijerino 2013). Ferguson, Hider and Lloyd (2008) place that librarians use knowledge acquired from information, records and content management.

Savolainen (2009) emphasises that knowledge use is an event which happens the world over in the context of everyday life. Besides, Hughes (2006) comments that the utilisation of information covers the client's conduct, interfacing (to the wellspring of the information), hunting down information, information abilities, information use, learning need, responses and impacts, just as consequences of learning. The utilisation of information can be portrayed as scholarly action which is showed through different considerations and deeds. The motivation behind making information accessible is to use it to improve the exhibition of an individual or any gathering (Husain and Nazim, 2013). At the end of the day, people share what they have realised and exchange what they have known to the individuals who have the aggregate intrigue and who have discovered the learning valuable. With the end goal for learning to be utilised when it is

made to offer some benefit to the library and its administrators, it must be imparted to associates, collaborators and partners (Omotayo, 2015).

Knowledge use has been defined by Kulkarni, Ravindran and Freese (2006) as how much an individual trusts that he/she has fused an information object into work works on, including critical thinking and basic leadership exercises. To this end, knowledge use means the productive deployment and application of actionable information, ideas, expertise, skills, lesson learnt and insight in the production process among librarians. Therefore, when knowledge is rightly applied by librarians, it will enhance their innovative ideas and creative prowess.

Knowledge use is the application of one's knowledge to support objectives either for self or others (Greenhalgh, Robert, Bate, Macfarlane and Kyriakidou, 2005). Therefore, it is expected that librarians use their both tacit and explicit knowledge to the advantage of other colleagues as well as the library clientele. Knowledge utilisation is the appropriate use of knowledge, regardless of its forms and types (Senapathi, 2011). The utilisation of knowledge inNigerian universities by librarians has been studied by Adogbeji and Toyo (2006); Okonedo and Popoola, (2012).Shokeen and Kaushik (2002) note that exceptional researchers of Harrana University in India regularly utilise current journals and textbooks, course readings and reference books. Agba, Kigingo-Bukenya and Nyumba (2004) keep up that successful knowledge usage prompts their better quality, proficient and powerful research like never before. The more the library administrators utilise the knowledge share among expert partners, the better the quality and effective research yield they will have. Kemoni (2002) does a study on knowledge utilisation in the University of Nairobi, Kenya where it was reported that librarians useboth tacit and explicit knowledge through channels such as conferences, workshops and seminars.

The use of knowledge among librarians is a propelling force that will determine the versatility of librarians as far as creativity and innovation of librarians is concerned. If knowledge is created and shared, it will facilitate its use. Anna and Puspitasari (2013) maintain that knowledge sharing will be useless unless it is used by employees in the organisation. Oshri (2006) observes that knowledge use is very helpful in the creation of products , new knowledge, and that knowledge re-use can promote organisational innovation without having to repeat the process from the beginning.. At the point when knowledge is once in a while utilised by the employees to assist them with their work, take care of issue or make advancement in the library, it implies that creation and sharing procedure of knowledge is less effective.

2.5 Creativity of librarians in universities

Creativity is important for the continued existence of any organisation. Stanley, Slater and Tomas (2008) present that there are different variables influencing innovativeness and development of individuals from within and the without of organisation. Biranvand, Soheili and Khasseh (2015) ermphasised that one of the significant objectives of every creative action is improving the execution and improving the viability of the association. In the present world, the organisations are fruitful in contending with others that utilises the vast majority of the chances. This can be made possible when creativity in organisation increases.

Biranvand, Soheili, Khasseh (2015) stress that creativity in libraries can be researched from interior and outside angles. The inner angle oversees the states of creativity appearing among the staff of the library, while outside perspective thinks about the states of creativity of clients of library. This investigation focuses on the interior part of innovativeness. Until librarians are creative, they can't excecute creativity among their clients. The quality of services provided by the administrations of library basically depends on how creative they are.

To advance the value of services, librarians should be creative and provide the required conditions for their creativity. Librarians must have positive work disposition,positive mental condition and great state of administrationto give the best service that are convenient and at the very least cost. The creativity of librarians in libraries, their work, environmental and psychological conditions needs to be genuinely researched.

Tabarsa, Mahbub, Ismaili and Ismaili (2010) studied the effect of organisational entrepreneurial culture on creativity in public libraries (Iran), and established a strong connection between work value element and other organisational culture scope like courage, tolerating creativity difference, effortless belligerence; risk bearing, open communication, collaboration, and participation are in unsatisfactory condition. Darabi (2012) survey the state of creativity by librarians in Kohkiluye Buyerahmad province, the result revealed that their level of creativity was above average. Similarly, the outcome of the study conducted by Kahzadi, Soheili and Familruhani (2013) on creativity of librarians in Kermanshah province revealed that positive mental conditions of librarians were inspired by work and non-work contextual factors.

The challenges facing libraries can be solved through application of creativity. To demonstrate creativity in organisation, the following factors must not be downplayed: personal differences which include proactive personality, mental health and internal motivation of

individual, organisational setting and environment, organisational atmosphere, organisational participative ethnicity, incentive and professional training facilities.

Shademanfar and Omidekhoda (2009) argue that if creativity are measured as entrenched completely in thoughts and action, then, it should expand the people talents, individual, occupation and community accomplishment, increasing the value of products and services, decrease expenditure and wastage on human and material resources, improving job satisfaction and mental health, improving growth and proficiency, stirring healthy competitions in creation, sharing and services, reducing managerial bottle-neck, rules and regulations which will eventually increase benefits. Furthermore, creativity in HR of libraries can prompt the bliss and learning of thousands of individuals (Tallent, 2008).

Olajide-Williams and Popoola (2013) stress that with current advance in the study of creativity, the idea that creativity is a gift residing within a few individuals was replaced by the belief that creativity potential is an attribute of individuals. Despite the fact that creativity was considered as exclusively based on internal factors, environmental factors have a strong effect on the creative production of workers in any organisation. It is therefore an undebateable fact that when librarians' creativity is improved, the library and library users will become happier through improvements of quality and quantity of output produced.

One characteristic trait of creativity is that it tends to appear where it is less anticipated. This is because it may occur unexpectedly, most often, in abrainstorming sessions where one sits to find solutions to identified problem. However, one must begin with a specified problem. This is because without a problem in mind to solve, even if creativity-boosting methods are applied, it will be difficult to come up with new initiative (Stenmark, 2000).

Jantz (2013) remarks that creativity is linked with vast component of surprise and most creative acts are absolutely unexpected. Therefore, one may not know who will participate in a creative act, the exact act, when and how it will occur. This standard is essential to creativity and failure to understand it will limit creativity in organisation. Moreover, though creativity may not be predicted, it can still be promoted from both the individual and organisational end. When somebody in a library begins perusing book after book, searching for a specific word, it might be hard to foresee when and where it will appear, yet there is conviction that it will in the long run be found. Consequently, managing creativity is in relation to raising the possibility for creative acts to take place by stirring the factors that propels creativity (Jantz, 2013)

The term creativity and innovation are regularly expressed together as they are firmly related (Jantz, 2012). It is widely acknowledged that creativity is the invention of ideas, while innovation is the performance of the ideas invented (Iranzadeh and Bahrami, 2013) Creativity is essentially a personal and psychological action, while innovation is the derivative of creativity procedure. Coveney (2008) sees innovation as a practice that begins with generation of idea and recognition of opportunity. Borghini (2005) posits that the most regular characteristics ascribed to creativity are the idea of originality and expediency, which are common in various definitions of creativity. It should be noted that creativity and innovation are frequently connected with change, this is on the ground that the execution of a new insight leads to change (Sukovic, Litting and England, 2011; Zaid and Oyelude, 2012.).

Baer (2010) sees creative individuals as people who have managed to retain and express a substantial portion of the innate potentiality with which all humans are born and equipped, or whose life experience at home and at work have not totally suppressed such potentials. He identifies four basic criteria for identifying something as creative which can be formed into a four way test of creativity. The four ways test of creativity can be applied to any activity of ministry, local government, institution, parastatals and even organisation. The author stresses further that an idea is creative if product or service is creative and if it meets the following criteria: It must be original, heuristics, transformational and useful. Apparently, as good as creativity and innovation is, there are some barriers that must be removed before this can be fully implemented in the life of an individual or organisation. Stoke, Wilson and Mador (2010) contend that there are range of internal and external barriers to invention, depending on the particular industry/library, size of enterprise, records structure and motivation involved.

Creativity is basically human behaviour (Akinboye, 2001; Bednarz, 2008). Tanasijevic (2013) observes that, creative individuals create ideas that resemble underestimated stocks and are commonly dismissed by people in general. When creative opinion are projected, they are regularly see as strange, useless, and even odd, and are summarily dismissed, and the individual proposing them are often derided and may even be scorned and abhored. This implies imagination is hard to oversee, and that creative individuals are known for opposing inflexible standard.

Henriksen et al(2015), describes creativity as one of the ways by which people exhibitoptimal functionality and bring into being something effectual and new. Standler (1998)

contrasts creativity and inteligence, he emphasised intellect as the capacity to discover and think, while creativity is to do things that have never being in existence. Therefore, creative individual may be clever but not all clever individuals are creative.

In library as an organisation, experiences are facilitated when people are allowed to use their discretion on how they do their work schedule as well as when information is of high standards (McManus, 2005). Amabile (1983) states that individuals will perform more than expected if they have interest in the work they do, rather than threatened them to work. When individual are given high level of discretion to work, especially with relation to the use of time, it will facilitate creativity. McManus (2005) maintains that when individuals are allowed to work in conformity with their own creative styles, it propel creative act.

Creativity is germane to accomplishment of the goals, visions and aspirations of any profession, library and information studies inclusive. Coveney (2008) assessed the organisational atmosphere for creativity in a United Kingdom (UK) Public Library services, he found that library managers in UK Public Library are keen to recruit creative people since it is just the creative personnel that will probably design approaches to transform a drilling work into an intriguing one or to get things done around it to make their work interesting. The secret behind this is because creative individual are capable to sustain their own passion to inspire others. He concludes that inspiration for creativity does not happen by magic, but conducive environment must be created for it. Atata, Oji and Tom (2014) confirmed that if library administrators are well focused about creating creativity in their library administration, they must develop and create conduicive workplace for library staff to discharge their creative potential.

The issue of organisation creativity can not be over-emphasised, a survey carried out in a United States of America (USA) as reported by HR Focus (2007) discovered creativity as one of the most critical skill the employee in corporate organisation must to demonstrate. In the same vein, Egan (2005) stresses that the nurturing creativity is essential for organisation who want to compete successfully with respect to advancing technology; environmental change; change in organisational strategies; overcoming competitors, improvement of products and services etc.

Moreover, library administrations have in no way, shape or form been saved in this tempestuous world, having needed to manage changing clients' practices, money related limitations, quickly developing innovations and the effects of government strategy (Walton, 2008). The achievement and survival of any library administrations relies upon the creativity of

library directors if they will to guarantee their existence in the year to come. Walton (2008) stresses the pertinence of creativity as key to the administration of libraries just as the significance for the library directors to assume liability for inventiveness to happen and create inside the library administration. Administrators need to discover techniques for making societies that advance this quality. Creativity and innovation necessitate that issues be seen in new ways and that individuals from an association feel the opportunity to express thoughts regarding these issues that may challenge suspicions and business as usual. One technique for cultivating this development in an organisation is to put play in action (Kurt, Kurt, and Medaille, 2010)

Statler, Roos, and Victor (2009) clarify that individuals that play genuinely in associations may open themselves up to a procedure through which the general importance of their identity as people or as a group might be changed or adjusted. The inventive intensity of play is significant for libraries not on the grounds that it can prompt the improvement of novel items and administrations, but since it can possibly prompt self-examination and certified change. Play reliably invigorates, draws in, and inspires its members. Individuals play's identity prone to be characteristically spurred to finish an assignment, which is basic for inventiveness (Kurt, et al 2010). Some portion of play's capacity as a help results from its relationship with positive enthusiastic states, for example, delight, happiness, energy, and good faith.

Moreover, through passionate commitment, play elevates receptiveness to new thoughts and more prominent psychological adaptability. For ex-adequate, a library director who starts a gathering with perky chitchat and jokes sets a positive, open tone in which library workers appreciate the ex-change of thoughts. Notwithstanding something as basic as flying a kite or tossing a Frisbee can make euphoria, raising spirits and improve frames of mind (Kurt et al, 2010).

2.6 Innovation of librarians in universities

The desire of librarians to meet up with the speed of development and growth calls for creative and innovative expertise. The continued growth of academic libraries, especially university libraries is largely depends on how much innovative services they can offer (Islam et al, 2015). Innovation in librarianship is all about looking for new ways to improve library services (Onuoha, Anyawu, Ossai-Onah and Amaechi, 2015). The need for innovation and creativity among librarians as asserted by Njoku (2008) was based on the fact that the library environment in which professional have to perform or discharge their duties is significantly

changing due to economic, demographic, educational, political, technological and social development. The uprising in computers, communication and contents in the last few decades has had dramatic effect on the information career and as the information world is becoming more paperless, changing from the paper-based to electronic information, innovation is inevitable.

Innovation, according to Onuoha, Anyawu, Ossai-Onah and Amaechi (2015) is the introduction of new things and adjustment of what has been. Innovation in libraries can be new ideas that is introduced in the learning process, it is all about presenting significant ideas and practices that are new and are likely to bring positive changes to libraries. These ideas could be the method of charging and discharging information resources, management of traditional and online resources, digitising information resources and management of local content in libraries, etc. Anyawu (2010), admits innovation as the capability to apply new concepts that will enable you to carry out activities in a different ways. In her view, through personal initiatives, thoughts, perception and insight, things can be turned around. On the other hands, librarianship is all about discovering of new ways of carrying out library and information services (Onuoha, et al. 2015). This assertion is true when comparing the traditional way of cataloguing and classification and the way it is being done today. Innovation in libraries has granted access to knowledge domain of other libraries and librarians, copy cataloguing is now part of librarians' professional practice. This has reduced drastically the amount of time that could have been wasted in the professional practice.

Trott (2005) asserts that innovation manages different tasks involved in the course of idea creation, technology development, manufacturing and marketing of a new products and manufacturing process. If innovation is understood as a course of idea production, it is therefore knowledge application and the successful exploitation of a new knowledge is the whole reason for innovation (Laeeque, 2014). Netneski (2015) acknowledged communication, critical thinking, creativity and collaboration as the main drive for innovation in libraries. Anyawu (2010) argues that innovation has to do with application of new ideas, a new idea is not meant to be dormant, but rather, there should be an opportunity for it to produce more fruits.

Njoku (2008) contends that innovation implies change, but not mere change which can occur on its own, or change brought about by man for the sake of it, without benefits. In other words, any change associated with innovation must be linked with either economic or social benefits to the organisation or the society at large. Rugman, Collinson and Hodgets (2006)

broadly divide innovation into product, service and process development. The former to them refers to activities that influence the creation of a new product and services that customer wants or improvement to existing products/services for customer than those of rival forms. Ferguson (2012) on the other hand, categorised innovation that is applicable in library environment into product, process, marketing and organisational innovation. Product innovation has to do with a service or product that is new or significantly improved e.g. improving virtual enquiry service through the introduction of an instant messenger to propel enquiries. Process innovation can manifest in delivering a service that is cost effective. This can manifest in automating routine library work to save time and intensify quality.

However, the rationale for creativity and innovation in library services is that they assist in the improvement and sustenance of the quality of library and information services rendered in libraries, hence, transposing the library in the community where librarianship as a career is regarded as a career of the last option. Grand Valley State University (2016)reports that in Califonia,in the United State of America, people from the market place patronised the library for assistance on graphic designing, public speaking, writing research reports and data analysis. The library suggests and provides opportunities for developing potentials in the areas of digital and media collaborations. Onuoha, et al (2015) state that creativity and innovation recreates chances for librarians and reposition them to gain competitive benefits only if these opportunities are discovered. Chunli and Jinmen (2011) posit that librarians have to innovate in reference and information services to meet the client changing needs, the reason is because what the clients need in the digital age are not only information or documents but processing of information into products.

Innovation policy, though fashionable is often taken the wrong way; it is a supplement to technology and science policy, as frequently presented. Innovation - the application of all types of knowledgeto attain anticipated economic and socialoutcomes is more extensive than science and technology, often merging technical, organisational, and other types of changes (Swain, 2011). The innovation system plays a vital role in obtaining, generating, espousing, and distributing knowledge, which is essential for success in the knowledge economy. The innovation system in any country consists of the system of rules, institutions and processes that distinguishes how the country obtains, generates, distributes, and uses knowledge (Dahlman and Utzs, 2005).

Lajoie and Bridges (2014) stress that the terms innovation and change are frequently made use of interchangeably. An innovation, or change, is usually explained as any object, practice or idea, that is perceived to be new by an individual or the organisation either accepting or refusing it. Even though the idea has been around for a while is known to other organisations, it is still considered a change or innovation if it is new to the organisation considering it. Therefore, change or innovation in libraries and information centres has become imperative due to the technological revolution and prolific growth of electronic information recently (Swain, 2011).

Valentini and Triantafyllou (2015) and Ibegbulam and Jacintha(2016) aver that there are different ways through which librarians can adequately be exposed to innovative and creative skills in library and information science profession. Onuoha et al (2015) maintain that in this era of information communication technologies (ICTs), librarians through various conferences, workshops and seminars organised by arms of the association such as Cataloguing and Classification Section and Library and Information Technology (IT) can learn new ways of improving library services to their patrons due to the availability of Internet facilities.

The Internet, which has caused remarkable change in librarianship, can similarly be used as opportunity for realising innovative and imaginative skills. An x-ray of library practices in Nigeria reveals that many innovations have been introduced. Zaid and Oyelude (2012), in their study using University of Lagos library and Kenneth Dike library, University of Ibadan, posit that the subsequent forms of creativity and innovation can be adopted: laptop loan services, incorporating web 2.0 tools for library operations, e-resources management services, electronic reservation services, provision of research tools, introduction of virtual library environment and making available 24 hours library services. All these innovations and creativities are owing to the Internet provision which has noticeably improved the phase of library professional work. The current economic recession that is confronting the Nation coupled with the incessant cut in library budget as being experienced in most of Nigerian Universities may not allow all the submission of Zaid and Oyelude to be fully implemented in Nigerian university libraries, for example, the issue of laptop loan services. However, some of their parameters suggested can be put in place, most especially, the application of web 2.0.

Swain (2011) argues that owing to dramatic improvements in the information society and the ICT sector, managers of libraries are interested not only in adapting to these extensive

adjustment, but, more essentially in triggering innovative concepts from their personnel with a view to remain at the leading edge of knowledge other than ordinary passive spectators. Technology can be used creatively in the delivery of service through means of the mobile phone, for example, some libraries have accepted this device to send late reminders to customers for the late return of library materials (Ramjaun, 2008). Librarians have convincingly proven their capability to chief, manage and make use of innovative technologies by the introduction of CD-ROM databases, OPACs and Internet access into their libraries in the last few years (Malimconico, 2012). Thus, it has become trendy to say of a new librarianship and of a new image of been first users of new technologies. Librarians therefore, are adapting to the use of the newest information handling and communication technologies.

The range and difficulty of challenges facing librarians and libraries today are unprecedented. Undoubtedly, the propagation of information technologies has made a major effect on libraries in the way they deliver their services and content as well as the arrangement of that very content, especially in the advanced nations where most libraries are moving towards digital collections or at the very slightest hybrid print and digital collections. In this society, there is also growing expectations of operators for quality, accurateness and instant reaction to their own needs. Ramjaun (2008) remarked that innovation in libraries is unavoidable owing to the subsequent causes: redefining procedures that boost the process of finding better and new means to make library collections and services more beneficial; applying new technologies to extend and improve library facilities to meet the needs of the user; creative association among libraries or between libraries and other institutions exploration of the libraries' future; the introduction of new services or the retooling of traditional services leading to improved user experience; the discovery of unmet user needs;and incorporating the unsurpassed practices from foreign libraries wherever possible.

Tambwe (2016) avers that university libraries in Uganda are digitising books and issuing library resources in electronic format to the library patrons. Buwule and Mutula (2017) recommends that as part of innovation in the university libraries, librarians should take advantage of social networks to spur collaborative entrepreneurial and innovative services. Similarly, Johnson, Adams, Estrada and Freeman (2015) conclude that university libraries should no longer endeavor for market share but should endeavor to create new produces and services for the market. Vaughan (2013) examines innovation of technology in academic libraries. The result

was founded on a study which was concluded by 24 directors of member libraries of the Association of Research Libraries. The result revealed that the impact of innovation on customers and its linking with the library's mission ought to be deliberated before effecting it.

Furthermore, Swain (2011) maintains that for libraries to survive in these environments, librarians must be innovative. Innovation adventures change and offers libraries the means to handle the unstructured complications rising from changing environments. It is apparent that owing to the overflow of electronic information harmonising with the introduction of contemporary ICT devices, the information professionals frantically strive to revamp and re-engineer their techniques of services delivery to the users' society by changing over traditional practices to electronic information systems and services through an innovative approach (Swain, 2011). Innovation therefore is knowledge application.

The need for innovation begins with idea conception. Speaking in the same direction, Ananiadou and Claro (2009), on the need for innovation and creativity, reveals that the improvements in the economy and society require that the educational system prepares young people with expertise, that allows them to benefit from the developing new form of socialisation and to actively influence to economic development of the nation. Innovation is creativity application that lead to the broad adoption of product, service or strategy (Kaya, Turan, and Aydin, 2015). If innovation is the application of creativity, the application of both creativity and innovation to library operations will help librarians in their quest to create knowledge.

2.7 Knowledge creation and creativity of librarians in universities

Creativity is defined as generation of useful and new ideas in all fields. It is articulated as producing, conceptualising useful and new ideas, procedures and processes which is advanced by individuals and groups working together (Bergendahl and Magnusson, 2015). Creativity is a process; creative people work hard in finding solutions to problems and change, developing ideas and solutions that leads to gradual alterations and amendments to what already exists. Altay and Tekin (2013) reported Samen (2008) who summaries the basic features of creativity as follows: Creativity is:

i framed from what has not occurred before,

ii generating new product and service,

iii formed with the use of intuition and imagination,

iv the final form of what had existed before,

v formed after curiosity and brainstorming that facilitate creative thinking, and

vi a requirement that is likely to encounter new possible problems; especially when the existing solutions are not enough to solve the problems, creative ideas are needed.

Kapu and Basturk (2013) state that creativity and creative services are seen as very important elements for all management. Altay and Tekin (2013) stress that knowledge creation and creativity enables libraries in Istanbul, Turkey to increase value creation potentials to their organisational structures by promoting creativity and earn strategic superiority against their rival, gain great advantage in up-to-date production and services as well as raising awareness to people they provide services (Kapu and Basturk, 2013).

Altay and Tekin (2013) stress that increase in resources and diversifying parallel to the developments in information technology requires librarians to introduce new creative service. They argue further that technological advancements have provided many opportunities for libraries; and that, libraries should make the best of them and generate new services. Islam, Agrawal and Ikeda (2015) posit that libraries must embrace a circumstance where knowledge is not only managed by the librarians in the form of periodicals and books but created in the library.

Olajide-Williams and Popoola (2013) define creativity as the production and acknowledgment of new alternatives, possibilities or ideas which may be useful in solving problems of administrative personnel in an organisation. This definition was operationalised in the context of senior administrative personnel in Southwestern, Nigeria, but the onus of this definition rest on the fact that creative ideas are good ingredients for problem solving. Creativity is therefore the bringing into being something which did not exist before either as a product, service, thought or process, among the librarians. It can be stated that creativity is connected to the aspects of innovation process called idea generation (McAdam, 2004).

McAdam, (2004) explains creativity as the synthesis of new concepts and ideas, where innovation is the performance of creativity and the development of creating new ideas. Therefore, the knowledge creation process is termed as a blend of the creativity process. It is the capability to initiate new and valuable idea (Davenport and Prusak, 2008), when a firm gets and accepts knowledge from other people, it adjusts knowledge to make it adaptable to their environment (Bhatt, 2001).

Mahmood, Qureshi and Shahbaz (2011) observe that knowledge can be divided into two categories, buttressing the argument of Kemp (1976). He argues that the two categories of knowledge are the personal (private) and social knowledge, the previous being held in the mind of a person, the latter being collectively possessed by the public through its records. Kemp debates that private knowledge is a tacit individual knowledge, new ideas and new facts can only originate in the mind of people. There is a mutual connection between explicit knowledge and tacit knowledge. Therefore, social/explicit knowledge is a vital basis of personal or tacit knowledge. Kemp (1976) maintains that right of entry to records, which are the vehicles for the communication of coded knowledge, is needed for the creation of personal knowledge. Therefore, the role of the librarian is to ease the communication of explicit knowledge between the individual that produced the record and the individual that has to know about it. He states further that the librarian is an agent of communication whose duty concerns obtaining, processing, organising and broadcasting the records of social knowledge to help people to generate new personal knowledge.

The submission of Kemp (1976) is weak especially when compared with what obtained in the literature of knowledge management. Although, as stated by Kemp, tacit knowledge is a feature of the cognitive domain of an individual, it is personal. Besides, the application and use of tacit knowledge leads to the production of explicit knowledge. It is to be noted that the process is revolving. That is, when tacit knowledge is shared and used, it results in the creation of new knowledge, while the continuous use and application of new knowledge into library services equals creativity and innovation. Dorner (2001) stressed that like any other professional groups, librarian also participates in the knowledge creation process through the means of publication in journal articles and books. These periodicals are the vehicles for the communication of explicit knowledge to the broader world so that other librarians can also generate new knowledge through the literature reading.

Similarly, the finding of the study conducted among librarians in Philippine by Apolinario, Eclevia, Eclevia, Lagrama and Sagun (2014) revealed that 71.4% have carried out a research since the conclusion of their bachelor/master's LIS degree. 56.5% librarians have presented a total number of 134 research papers at international conferences, such as IFLA, World Library and Information Congress, Congress of Southeast Asian Librarians (CONSAL).

Asian-Pacific Library and Information Education and Practice (A-LIEP), Special Library Association Annual Conference, and Rizal Library international Conference.

Externalisation is a personal process by which the tacit knowledge is changed into explicit knowledge. Once the knowledge turns out to be explicit, it can then be distributed, spread and conveyed to other people by verbal and non-verbal languages. "Of the four modes of the conversion of knowledge, externalisation is the key to knowledge creation because it generates new, explicit ideas from tacit knowledge" (Nonaka, Toyama, Byosiere, 2001). However, they further that externalisation is a very motivational procedure and the accomplishment of conversion of knowledge is dependent on the ability of proficiently using analogies, cognitive nodes and metaphors. Metaphors play a significant role in the generation of new theories and concepts through the use of known ones (Andriessen, 2008; Atata,et al, 2014).

Explicit knowledge is clear and formal, either on paper or saved electronically in databases. It depend on the facts that can be explained and spread to others. These two kinds of knowledge; implicit – tacit and explicit, generate new knowledge together. Therefore, the transformation of creativity into library product and services will enable librarians to create knowledge. To innovate is a recurring and complicated procedure which requires personal and organisational creativity. As individuals, our capability to communicate 'the potentially creative' boosts the organisation's innovative capacity. The establishment of internal communications, learning and experimentation are a replication of individual and organisational creativity (Kulakli and Mahony, 2014).

The knowledge creation and creativity requires bendable environment in which investigation can take place and defying the norm are fortified. The necessity for adaptiveness and flexibility in the creation of knowledge has been well recognised in innovation literature (Auernhammer and Hall, 2013). The other phases of the lifecycle of knowledge deal with communication of new knowledge throughout the organisation until it becomes engrossed into the knowledge base of the organisation by use.

Ikwuegbu (2010) suggests that creativity is borne out of knowledge creation which means doing out of experience, explanation and assessment of trials stumbled upon that lead to something novel or new. Therefore, librarians' creativity is likely to go higher if library managers allow them to utilise their inherent creative ability. This is in line with the assertion of Zhou, shin and Cannella (2008) who posit that creative presentation is deliberated as the creation

of potentially useful ideas created by an individual i.e. creativity is considered as acreative process outcome.

Furthermore, Auernhammer and Hall (2013) note that organisation that seeks influence on knowledge creation processes and creativity must: support and value free communication and new ideas; tolerate mistakes; be open to change and nurture intrinsically motivated staff. Library managers need to endorse the above mentioned features as a shared value, while stimulating and enabling their staff to create novel ideas in their quest to promote innovation. Moreover, the authors identified the factors of knowledge creation and creativity as structured "space" that makes skill and experience of people while working in routine; willingness to innovate by individual without minding the risk of failure; and specifically dedicated "space" for individual to discover novel idea.

Stenmark (2000) concludes that rich information provision will go a long way to enhance creativity and knowledge creation in organisation. He maintains that the part of information and information systems in creativity work is worthy to be spelled out, since minute consideration has been given to the precise facets of information provision for invention and knowledge creation. Similarly, Bawden (1986) has acknowledged browsing as the most suitable way of organising and regaining information for creativity and knowledge creation. Browsing in Bawden's vocabulary is the unstructured reading of different sources of information so as to get inspiration or fortuitously run into novel pieces of information. The availability of rich information serve as stimulant to generation of ideas which will in-turn affect the dimensions of knowledge creation by librarian. Rich information provision is therefore a critical factor for successful corporate creativity.

2.8 Knowledge creation and innovation of librarians in universities

Innovation implies generation and implementation of ideas to create value for organisation, and consumers, while knowledge creation is sharing the emotional, mental and active knowledge in a way that the results lead to aggregate value (Popdiuk and Choo, 2006). Popadiuk and Choo (2006) argue that literature review suggest a number of ways that innovation relies to a large extent on knowledge creation. Innovation comprises of novel concepts that have been changed or applied as processes, services or products, producing value for the firm. Ideas are generated by a profound communication amongst people in an environment that is conducive to enable creation of knowledge. Knowledge creation is a process that is concerned with the

interactions of tacit and explicit knowledge as posited by Popadiuk and Choo (2006), they state that two knowledge – based dimensions are useful to innovation which are the organisation's competences in the creation of knowledge and it's knowledge about the market. Tacit knowledge is closely connected to examination of knowledge while explicit knowledge is more involvedin knowledge use, thus organisations engage in investigation i.e. the pursuit of a new knowledge, of things that might come to be recognized. (Hessel, van Gelderen and Thurik, 2008; Mattia, 2012).

The general classification of innovation in a knowledge creation perspectives model developed by Popadiuk and Choo (2006) revealed four quadrant of innovation process, in the first quadrant, the firm generates novel knowledge by exploration which is built on tacit knowledge and commercialises this knowledge by the use of novel knowledge, this is called "Radical Innovation", where novel ideas often appear unexpectedly from unpredicted sources, commonly by the vision of some experienced individual or group.

The second quadrant was linked with generation of new knowledge through exploration. In the development of the product, a significant source of innovation is the knowledge that has been organized (i.e. made explicit) about the components of the product and the way through which they may be related together. It is therefore deduced that the creation of knowledge is concentrated on the knowledge generation and knowledge application whichresults in novel abilities for the firm or library as the case may be. Innovation on the other hand, involves how these abilities may be changed into services and products which have economic value in the market (Popadiuk and Choo, 2006).

Omotayo (2015) observes that knowledge creation is basically a human procedure which the use of technology can facilitate. She explained further that organisations leverage on their capacity to create knowledge and generate value with new knowledge. Knowledge creation in libraries leads to novel and innovative products, advances internal operations processes, improves the strategic decision-making skills and direction of the organisation. For organisation to keep on being maintainable within its market place, Hislop (2013) posit that the capability to create knowledge and create a competitive benefit is important.

The significant of information to organisation has been well recognised by a number of researchers. Chatzekel (2007) points out that innovation is one of the novel elements which is being associated with knowledge creation. The most valuable asset of the organisations lies is their capability to innovate. Innovation according to Du Plessis (2007) is defined as the creation

of new knowledge and ideas to enable new business processes and structures and to make market driven products and services. It is the main factor to boost business growth in any organisation for long term success (Pei, 2008; Wabwezi, 2011). When a library innovate, the level of her patronage will be higher compared with another library that cannot. The recent complaint about the low level of patronage of library users by library administrators may hinged on two factors: ability to create innovative services or inability to create innovative services on the part of librarians.

Similarly, Pei (2008) argues that knowledge management supports the creation of new knowledge which functions as a vital input element for organisations to innovate more effectively. He pointed out that the outcome of innovation could be novel products and /or services, new technologies, new production processes, and new organisational structures. So far the libraries can constantly set up knowledge to sustain their innovative efforts; their business will soon beat rivals and they shall be able to maintain long term growth (Pei, 2008). Innovation implements generated idea and process them into a new products and services, leading to the economic growth and employment opportunities, as well as creation of profit for innovativebusiness enterprise (Ullah, Akhtah, Shahzadi Farooq and Yasmin, 2015). In the light of the above statement, it is not an aberration to conclude that the growth of Nigerian economy and its sustainability is largely dependent on the creation of innovative expertise by the librarians whose responsibility doubled as the creator and gate keepers of records of human knowledge.

Innovation is in no way a phenomenon that occurred once, but it is acumulative process of arrays of organisational decision-making process, beginning from the generation of a new idea to the phase of implementation (Popadiuk & Choo, 2006). Bergendahl and Magnusson (2015) declared that innovation is as a cumulative and social process through which individuals input and improves the production of new and valuable ideas especially at the onset of idea creation and development. Thus, when ideas generated are implemented, the value of such organisation will be greatly improved, and new knowledge created. Popadiuk and Choo (2006) argue that innovation of any organisation depends to a large extent on the knowledge creation of the organisation.

Agile (2010), on innovation and knowledge creation argues that there are two main aspects to innovation – the development of knowledge and concepts on one hand, and the concrete implementation of those knowledge and ideas on the other. Therefore, knowledge

creation in library or any other organisations is a dominant tenet of innovation and must be well understood by anybody looking for ways to rouse innovation. Several researchers have argued that the ability of an organisation to create new knowledge is essential to its innovation capabilities (Scupola and Westh, 2010; Mavodza and Ngulube, 2011). There is therefore a strong perceived association between knowledge creation and innovative outcomes of librarians, it should not be taken for granted.

Knowledge management processes, for example knowledge creation will predict certain well-differentiated innovations, either internal-sourced or external-sourced. More detailedly, knowledge creation supports internal-sourced innovations while knowledge utilisation supports external-sourced innovations (Cheng, Emami, Kerschberg, Santos, Zhao, Nguyen, and Xi, 2005). Islam, Agarwal and Ikeda (2017) maintained that the hearth of organisation lies in their ability to create new knowledge. A strong relationship has been established between knowledge creation and innovation of librarians (Schutze and Hoegl, 2008; Mokhtari, 2016: Islam, et al 2017). Therefore, the creative ability of librarians will dictate the pace of their innovative performance. Librarians must of necessities make it a point a point of duty to create knowledge and improve the level of their innovation.

2.9 Knowledge sharing and creativity of librarians in universities

Kiondo and Nawe, (2005) state that in East Africa, issues of creativity in libraries began around 1984 at the University of Dares salaam library with the incorporation of ICTs in the library activties. This advancement saw the outstanding reduction of the work of the librarians. In Zimbabwe, for instance, computerisation of library services began in 1995 at the University of Zimbabwe. These are nevertheless strong efforts indicating how libraries in Africa have been pushing ahead in their craving to serve their users (Ilako and Ikoja-Odongo, 2011).

Okonedo and Popoola (2012) found that 76% librarians in public universities in South west, Nigeria, shared knowledge on new trends in library services with their colleagues, 67.1% librarians shared knowledge about cataloguing and classification with work colleagues, 66.4% librarians shared knowledge so as to use their experience in finding solution to problem encountered while performing their duties. The study further found that low percentage of librarians finds it difficult in sharing their expertise with their contemporaries.A study conducted in Taiwan which examined factors affecting behaviour of knowledge sharing and their effects

onindividual innovation capabilities found thattop management support, organisation reward, self-efficacy, and ICTs use were strongly associated with knowledge sharing (Hsiu-Fen, 2007).

In a study conducted in Ethiopia which examined knowledge sharing practice and its associated factors of healthcare professionals in Mekelle, the study found that the factors affecting knowledge sharing includes: individual, organisational and technological. Motivation to share knowledge through incentive and salary increase was also found to be part of the reasons why professional shared their knowledge. Other factors includes organisational factors supportive leadership, openness, knowledge sharing opportunity and level of salary increment were seen as important incentive for employee to participate in knowledge sharing practices (Gebretsadik, Mirutse, Tdesse and Tefere, 2014).

Creativity is bringing into reality new things; it is a novel idea that can be utilised for problem solving (Burke, 2004). Every new insight that are presented in the library might be alluded to as creativity since it is from these ideas that solutions to problems are discovered. Translating the new ideas into products and services is innovation (Martins and Terblanche, 2003). In our fast changing library setting we can look forward to see more creativity and innovation (Ilako and Ikoja-Odongo, 2011). Technology advancement provides opportunity for librarians to participate greatly (Reinholt, Pedersen and Foss, 2011). Creativity concerns itself in ways of improving old methods to produce new ones. It is therefore through innovation that existing services or products are modified and improved (Avlontis et al, 2001).

The componential model of sharing knowledge and creativity by (Amabile, 1988) recommends that knowledge domain is vital and most critical mechanisms of creativity. Space mastery and information is the establishment of a wide range of imaginative work (Cheung et al., 2008). By interfacing with others, representatives can amass pooled enlightening assets applicable to their undertaking or issue distinguished in the work environment, be presented to an assortment of thoughts and perspectives, and have higher possibility of blending the mutual assets into another group of space information, which can foresee creativity (Amabile and Khaire, 2008; Gong et al., 2012; Zhang and Bartol, 2010).

Gong et al. (2012) submit that high level of sharing knowledge supports employee'personal process and promotes individual's creative talents, which further boost individual creativity. Integrating different knowledge from various sources can advance high level of creative work (Tiwana, 2000). Therefore, the tendency is high for the employees that

have access into various knowledge and information of others to generate novel and creative ideas than those that does not (Gibson and Gibbs, 2006; Sosa, 2011). Similarly, an employee will also be adjudged as creative if they freely disseminate their ideas with their associates. New knowledge can be formed in the course of sharing of personal and organisational knowledge,

Chen (2014) in his study conducted in Taiwan on knowledge sharing climate, organisational demography and organisational innovation, state that there is a major and helpful connection between a knowledge sharing climate and organisational innovation. The same study reveals that demography profiles cannot alter the significant and positive correlation between knowledge sharing climate and organisational innovation. The study therefore concludes that the knowledge sharing climate may be the key to determine the success of organisational innovation like university libraries.

He further posits that the greater the knowledge sharing climate in any organisation, the stronger the organisational innovation. Chen (2014) further suggested the followings: that a knowledge sharing climate encourages members to share and communicate, this will predict the transmission of knowledge and increase the likelihood of organisational innovation; that knowledge sharing can foster a trust mechanism that is conducive to organisational innovation; that knowledge sharing predict direct flow of information and speeds up transmission of knowledge and increases the possibility of organisation innovation, and that, knowledge sharing enhances the bond among members and creates the opportunity for knowledge creation. The above factors will help to improve the effectiveness of organisation innovation.

The results of the study of He, Cho, Qi, Xu and Lu (2013) revealed that when you share explicit knowledge with people, it stimulates the employees' creative prowess, which may not beachieved during the cause of sharing tacit knowledge with others. Although literature suggest that tacit knowledge sharing within an organisation can be helpful to work performance and firm competitive advantage, however, exchanging one's distinctive skill and proficiency to others may deter exhibiting individual employee's own creativity.Sharing tacit knowledge requires deep and effective relationship between someone who send knowledge and its recipients, thus it required additional psychological efforts, time, and other resources (Liu, 2007; Haas and Hansen, 2007). The extensive relationships make the efforts and resources utilised for the creation of new ideas and solutions (Huang, Hsieh, and He, 2008). Conversely, explicit knowledge sharing with

others does not need major resources for processing relative information and distinctive experience, thus will not have conflict with creation of new knowledge.

Previous literature on knowledge sharing and creativity has concluded that when you reuse explicit knowledge, it may not likely advance performance of personnel (Haas and Hansen, 2007), it may worsening and wanecreative performance of individual**(**Cheung, Chau, and Au, 2008). He, et al (2013) however suggests that exchanging explicit knowledge in the course ofsharing may engender unpredicted benefits for the sender of knowledge. One likely method of achieving this is through transferring codified knowledge to people; individual employees may consider combining it with other codified information to get new insight.

Knowledge sharing allows librarians tohave right of entry to information, this may not necessarily through the printed sources, but it can also through the medium of the Internet. Therefore, it is assumed that, knowledge sharing could influence librarians' creativity which will enhance their productivity and effective service delivery. Therefore, positive relationship exists between knowledge sharing and employee creativity.

2.10 Knowledge sharing and innovation by librarians in universities

Knowledge sharing in libraries is a method whereby the discrete experience of professional librarians are mutually transferred in a more efficient and effective manner. Employees shared knowledge and experiences gained inside and outside the organisation (Yesil, 2014). This expertise that exist in people, according to Asogwa (2012), is more of tacit than explicit which makes it more difficult to share. Most of these experiences are shared in the workshops, seminars, staff meetings, board meetings and orientation. Asogwa (2012) argues further that in many university libraries, most of knowledge sharing is totally inept and thatpeople shared knowledgeinformally and much more on conversation basis.

Jantz (2012) posits that there is no regular and organised approach to knowledge sharing of library activitiess, thereby making it available to other libraries and staff of the library becomes difficult. Bartol and Srivastava (2002) opine knowledge sharing to involve individual exchanging important organisational know-how, ideas, insight and expertise with each another. Kulakli and Mahony (2014) stresses that sharing knowledge propels workers to share their insights so as to allows cost effective project completion which will definitely enhances innovation in library.

Asogwa (2012) observes that making the available knowledge to other library/organisation members will cut replication of labors and serves as the source for solving problems and also for making decision. In the view of Van Den Hoof and De Ridder (2007) organisational knowledge sharing amongworkers entails donating knowledge and collecting knowledge. Goh and Sandhu (2013) contend that knowledge giving infers imparting to others what one's scholarly capital is while knowledge collecting implies counseling partners so as to get them share their insight. Ramirez (2007) points out that knowledge sharing involves ensuring that the right people get the right knowledge they need when they require it. Sharing knowledge among librarians or among libraries can be the backbone of organisation learning which in turn can bring enormous benefit to an organisational innovation (Liebowitz and Chen, 2001).

Akparobore (2015), in an empirical study on sharing knowledge among librarians in Nigerians university libraries, found a low knowledge sharing practices among librarians. The study shows that 59% librarians in university libraries in Nigeria affirmed that this practice among them is very low. The same study earlier pointed out that librarian in Nigerians university shared knowledge on cataloguing, conferences/workshops and on online resource management, but their knowledge sharing pattern on personal term and through technologies utilisation is weak. This may be consequent of the fact that the culture of knowledge sharing among librarian is just emerging. Furthermore, She posits that the subject of knowledge sharing among librarians includes cataloguing, indexing, library and information science, database management, ICTs networking, knowledge management and acquisition of library resources.It should be noted however that subjects like publishing, marketing and circulation were rated to be low in terms of sharing of knowledge by librarians on the subject base.

Onifade (2015) argues that knowledge management behavior of any group will provide opportunities for members to share ideas and employ collective method that will consequently maximise the success of members' performance and contribute to general achievement of the organisation. Sharing knowledge in organisation will definitely influence and bring about innovative ideas into the library forum. Goh and Sandhu (2013) speaking in the same vein, stress that organisation that actively engage in knowledge sharing will increase opportunities for creation of new ideas (creativity) and will add value to their work activities (innovation). Therefore librarians needs to inculcate this phenomenon into their practice in order to maximise their effectiveness and contributes to the overall success of library practice.

Innovation is the key to firm survival, therefore constant innovation is an important path to obtain competitiveness (Kurt, et al, 2010). Innovation increases the value of organisations' assets (Faeni, 2015). Chigbu and Uzoagba (2010) believe that knowledge, if only stored in the brain of employees but not shared and utilised, will loose its value to an organisation. If a library can foster a culture of knowledge sharing, it will enhances herorganisational innovation.

In a global market where competition keeps intensifying, organisations have to pursue constant innovations to ensure growth. Frohman (1982) suggests that if the organisational culture encourages and supports innovation activities, it will greatly predict the success of innovation. Faeni (2015) contends that knowledge sharing is a communication process. When a member acquires knowledge from others, that knowledge is shared. If knowledge can travel freely, it will materialise its potential value and thereby inspired creativity and innovation (Chen, 2014).

Knowledge sharing, utilisation and storage facilitate innovation (Atata, et al 2014). To ensure competitive advantages, it is necessary that an organisation learn faster than its peers. Holub (2003) indicates that knowledge sharing speed up knowledge transmission and broadens innovation aspects. In other words, knowledge sharing has impacts on organisational innovation to a certain degree. The benefits of knowledge share are not limited to knowledge owners. The benefits of shared knowledge spread to the whole organisation and contribute to organisational innovation and performances (Islam and Khan, 2014, Mafini, 2015).

Choo (2006) observes that university librarians must add values to their work by extracting, analysing, summarising, synthesising and package information into a structure that is set for instantaneous use by the users. Dastgerdi (2009) affirms that it is necessary for librarians to change subjective and mental knowledge into an objective and practical one by establishing connection with people through learning and sharing. Maponya (2004) and Akparobore (2015) observe that librarians in universities need to go an extra mile in using the platform of their service delivery through knowledge sharing to enhance innovation in libraries. Librarians should be able to understand the knowledge need of the library patrons. When this happened, it will help their knowledge sharing hour to have impact on their innovative capabilities.

Foo, Chandhry, Majid and Logan (2002) infer that academic librarians must participate in searching for innovative solutions to the problems of adapting to new environment. Green (2008) as reported in Mavodsa (2010) asserts that creation of "social libraries" as places where traditional library practices and modern knowledge management technologies operate for

collective social wisdom is an innovative idea. Jain and Mutula (2008) on value addition, says that the partnership of libraries and academics will transform librarians status from service-oriented to value oriented. Evidence from literature abound sharing broad knowledge is important and can enhance innovative feat (Jegede, Ilori, Sonibare, Oluwale, and Siyanbola, 2013).

Knowledge sharing incorporates the practice by which knowledge is channelled between a sender and a receiver. Zhi-hong et al. (2008) argue that more researchers are studying knowledge sharing because of existing association between knowledge sharing and innovation. Donation of knowledge and collection of knowledge are two vital underlying concept of knowledge sharing effect on innovation capability inorganisation (Yesil, 2014). Knowledge sharing is essential elements in knowledge transfer and organisational innovation. Similarly, many researchers note the importance of successful knowledge management on organisational innovation performance (Kamasak and Bulutlar, 2010; Lin, 2007). Findings from the research conducted by Zhi-hong et al (2008) advance that knowledge sharing within firms positively influence innovation capabilities. Lin (2007) conduct a field study and found the positive relationship between knowledge sharing (knowledge collecting and knowledge donating) and innovation capability. Kamasak and Bulutlar (2010) ascertained the effect of sharing knowledge on all types of innovations.

The findings of Yesil and Dereli (2013) prove that knowledge sharing is invaluable source for organisational innovation. Alrashdi and Srinivas (2016) posit that the field of libraries is considered one of the oldest profession utilising knowledge sharing and expertise sharing. Turner and Petrunin (2015) stress that the use of knowledge spirals lead to increase in organisation performance and employee motivation Therefore, libraries that are looking for ways to increase innovative capabilities may need to take notice of knowledge sharing. Promoting knowledge-sharing culture in organisations is likely to lead to continuous innovation performance (Lin, 2007; Hussein, Singh, Farouk and Sohal, 2016).

Decker (2014) stresses that the library can position itself to be an association specialist and discussion.One noteworthy favorable position of utilising a library blog is that it doesn't require a login or a membership of any sort from the user. Blog content is uninhibitedly accessible and perusers may remain totally unknown while perusing. In the interim, dissimilar to Facebook, where participation is required to peruse content, anybody with access to the Internet

may peruse the library's blog, if it is set up free of confinements so anybody may peruse it (Horn, 2011). Brookover, (2007) place that a library blog in a scholarly setting additionally conveys to library client most particularly the understudies on what the library is doing, and making the client of the library to take part in online networking patterns that are significant in their day by day lives. Custodians, most particularly in the university should constantly advance the library as being innovatively cutting-edge learning center points and, by utilising a medium that is now natural to the library clients, this will go far to facilitate library's campaign effort and innovation.

King (2012) emphasised that a blog can also initiate readers to the library collection that they don't know before. Furthermore, Decker (2014) stresses that probable readers may not be expected to navigate the Internet to use their library blog, rather, if a link to the blog is displayed prominentlyon another webpage they are likely to use it. This may also increase the chance of acquiring a new blog reader. A blog post can explain videos and images about a new section of library collection, feature happening in the archives, or new library attractions. A library blog can also work as an "explainer," using library resources and services to provide clarity on topics of interest to library patrons. Blog content can serve as a means of method of innovating users; librarians can as well use their posts to assist readers discoveranswers to questions they might not know they have (Dankowski, 2013).

Techniques and systems proliferate through which libraries can share knowledge. The usually utilised dispersed system for sharing of knowledge are: Knowledge Fairs, Communities of Practice, Online Forums, After Action Review,Chat Rooms, Knowledge Networking, Intranet, Video Conferencing, Email, Knowledge Repositories,Lessons Learnt Database, Best Practices Database, Knowledge Maps, Data Mining, Blogs, Wikis etc (Ganesh, 2009)

Despite the fact that there is distinction between correspondence innovations, (for example, phone and email) and joint effort advances, (for example, work process the board), it is hard to separate between the two, since they are laced (Roknuzzaman and Umemoto, 2009). The two apparatuses have been gathered under the class of groupware or cooperation instruments. Senapathi (2011) reports that albeit every authoritative part will utilise correspondence and joint effort, including venture groups and work units, networks of training will be especially dynamic in utilizing correspondence and coordinated effort advancements, for example, groupware and cooperation instruments.

Even though difference abound in the use of communication and collaboration technologies, it is hard to make a distinction between them, because they are entwined (Roknuzzaman and Umemoto, 2009). Senapathi (2011) reports that although all organisational staff will use communication in the community of practice.Typically, group-ware supports operations such as staff meetings, e-mail and electronic newsletter and telephone utilities. All the above mentioned tools can be used as channels of knowledge sharing and communicating strategies among librarians in the university system.

Knowledge sharing possessed a significant possibility of enhancing innovation, many organisations have realised the importance of their corporate knowledge as factors for developing competitive rim especially in the face of the company setting (Chong et al., 2011,Asgharian, Zohoori, Malakoutis, Attarnezhad, 2013). Islam et al (2017) in their empirical analysis on the effect of knowledge sharing and innovation among 107 librarians drawn across 39 countries found significant relationship between knowledge sharing and innovation of the librarians. Therefore when knowledge is shared among librarians most especially on job related matters, there is likelihood of increased innovation that will occur in library environment.

2.11 Knowledge use and creativity by librarians in universities

There is a consistent and continuous search for knowledge in organisations, this is because knowledge is a critical factor that provides value to organisations. When a reference is made to knowledge, we quietly tends our mind towards documented and codified knowledge like manuals, books, databases, patent, journals etc, though explicit knowledge is essential, tacit knowledge which is rooted in people's minds is much more important, hence the need for its use in a more effective and efficient way by librarians to enhance the level of their creativity.

A cursory look at literature on knowledge use reveals that the term 'knowledge use, knowledge utilisation, research knowledge utilisation, research use, utilisation and knowledge' are used interchangeably. Knowledge use means many things to different people in various subject disciplines and research project. Knowledge use has been considered as a chief justification of management of knowledge. Osmond (2006) posits that knowledge use can be conceived as attitudes towards, orientation to, involvement with, production of and consumption of shared knowledge. Example of knowledge use includes transferal of the best practices from a part of the organisation to the other and the utilisation of employee captured

knowledgepreceding their exit from the organisation (Majchrzak, Cooper, and Neece, 2004; Kankanhalli, Lee, and Lim, 2011).

Backer (1991) avers that knowledge use pertains to the dissemination and use of research results by researchers in various investigations and by practitioners in application. He argues further that knowledge use involves organizational and individual change, which may possibly be both mechanically problematic and psychologically intimidating for those bearing in mind the application of novel ideas. Furthermore, Backer (1991) maintains that knowledge use needs resources- (materials, money and personnel) required for any important adjustment, particularly if the adjustment take place within a compound organisation. Therefore, knowledge use is the most critical of knowledge managing processes, this is because all the benefits of earlier phases of knowledge management: creation and sharing, accumulates in the utilisation process.

The study of Shorunke (2014) on administrative support, knowledge sharing and utilisation as associates of social capital and dynamic capabilities of insurance managers in Lagos metropolis found that insurance managers use knowledge gained from colleagues to publish more scholarly articles, presents better seminar and workshops papers, improve their job performance, generate new research skills, generate novel ideas and solve problems in their organisations. The same study found that managers' knowledge use positively correlated with their dynamic capabilities.

Bhattacharya and Chaudhury (2004) report that the tacit knowledge is instinctive, contextually related to experience, past memories and hard to organize, record and communicate. The same authors stressed that about 70 and 80% of all knowledge in any organisation is tacit knowledge and it is hard to detect, measure and converted into real value unless an organized method is embraced to handle or control knowledge. Knowledge is a cross-disciplinary domain, Bhattacharya and Chaudhury (2004) posit that library experts are already led into knowledge management activities and routines and the paradigm shift which is taking place whereby the libraries are getting changed into centres that manage knowledge and lots of creative and innovative ideas are being displayed.

Atata, Oji and Tom (2014) define creativity as the capability to create innovative thoughts and transform them from ideas into tangible form. Creation is the act of generating, especially the making, inventing or production of new ideas. Therefore, creation involves creative activity that is meant to do a novel thing (Ikwuegbu, 2010). Atata et al (2014) posit

further that modern practices in library and information career is naturally creative. If the knowledge built economy of the 21st century is to be attained, there is a necessity for creativity and innovation in the libraries, most especially by the librarians because the higher the objective of the creative and innovative activities and its attainments, the better will be the satisfaction of the library clientele.

Predicting the use of knowledge among professionals in enhancing creativity and innovative performance, Kinsella and Whiteford (2009) stress the need to support forums that will enhance serious and collective discussion on work-related therapy's epistemic value at international and national conferences. This can also be applied to librarianship through the building of epistemic societies which strive to reveal, illumine and clarify practices that inform knowledge creation and use in librarianship.

Dalkir (2011), Agarwal and Islam (2014), Islam, Agarwal and Ikeda (2015), maintain that when knowledge has been captured, coded or created, and shared, it turns out to be accessible for tangible use. Knowledge management processes thrives when knowledge is utilised. Without that other knowledge management processes will be futile. Islam, Agarwal and Ikeda (2015b) establish an indirect effect between knowledge created and knowledge shared, which sequentially positively affected knowledge utilisation. They pointed out further that, academic libraries with more skill of knowledge creation are probably going to proposes added innovative services to their communities of user. Similarly, Islam et al (2015) states that academic libraries with fully developed knowledge utilisation practices are likely to present more new services.

A knowledge that is created, shared but not used will loose its value. New ideas of doing things especially library services are generated during the course of creation of knowledge, the expectation is that such knowledge be shared among librarians. It is equally hoped that knowledge gained when it is share be applied to day-to-day activities among librarians. Knowledge use therefore is the vehicle and propelling force for the actualisation of creativity and innovation among librarians, this is because when knowledge is used appropriately, it will enhance service delivery among library professionals

2.12 Knowledge use and innovation by librarians in universities

Knowledge use can be conceived as the most important aspect of knowledge management processes. Its importance can not be over-emphasised. A knowledge that will create, transform, influence and facilitate an attitudinal change among librarians must be used.

Shorunke (2014) observe that knowledge use varies in term of at least three dimensions: the type of knowledge considered, what constitutes use and the purpose for which is used. Salojarvi, Saini and Tarkiainen (2010) maintained that a good use of client or customer knowledge by organisation will set a foundation for effective decision making. Knowledge use therefore ranges from awareness of, its creation, sharing, ability to understand and individual attitude towards use. If the above are critically observed, it will leads to innovative display among librarians.

Knowledge use has been identified as the final stage of intergrated knowledge management cycle (Dalkir, 2013: Agarwal and Islam, 2014). It is the critical factors which decide the success or otherwise of knowledge management activities (Dalkir,2013). Islam et al (2017) found a solid association between knowledge use and service innovation of librarians. In Bangladesh, Islam et al (2015) has established a positive important association between knowledge use and innovation of librarians. Librarians therefore must intensify their efforts to apply knowledge gained from colleagues to their work schedule for their innovation capacity to be enhanced.

Dougherty, Barnand and Dunne (2006) note that innovative organisations are more lucrative, make more employments, develop more rapidly and are more useful than their non innovative counterparts due to their application of knowledge management practices. The innovative capability could be embedded in librarians/ library ability to rethink the problem solving models to improve product innovative capabilities which is a principal means to become accustomed to the changing market technologies and competitions. The study of Kankanhalli, et al (2011) has positively linked knowledge use with firm innovation, improved customer service by making available improved knowledge and decreasing response time as well as decreasing time required for new employee preparation. If librarians can move above the clamour for knowledge sharing to the establishment of knowledge use culture, the same parameters of benefits will equally be realised.

The study by Okonedo and Popoola (2012) on knowledge utilisation of librarians in Southwestern, Nigeria, revealed that information and knowledge librarians got from workshops/seminars and symposia attendance has really assisted about 87.4% librarians to publish more scholarly papers, 88.8% librarians applied knowledge gotten from colleagues to improve work performance, and to generate new research skills, 86.5% librarians use knowledge sprung from the use of Virtual library to enhance their information searching skills. Other areas

through which librarians use knowledge in public universities, South-west, Nigeria include: to improve their statistical data ability, use explicit knowledge to solve work problems, increasing research output in referred journals and in writing research proposals.

Creating deliberately what Nonaka and Takeuchi (1995) described as “creative chaos” is a way to form or strengthen the tensions that existswithin the organisation so as to raise and question the fundamental practices and premises upon which the organization operates. When this is skillfully done, and when enough time is provided for reflection, such provocation can trigger creativity as well as innovation. Dalkirr (2011) and Agrawal and Islam (2014) posit that except relevant knowledge is disseminated and attained by those who need it, it cannot be easily used.

2.13 Knowledge creation and sharing by librarians in universities

Knowledge sharing is considered as a procedure where creation and trading of knowledge among people occur. Knowledge is made by individuals, exists in individuals' psyche and is made through experiences with new condition (Smith and Paquette, 2010). The power and capacity to make new information dwells inside individuals. Information is critical to people, and capacity to create new knowledge is attributed to humankind itself (Nonaka, 1994). Once made, knowledge can make people describe existing circumstances.This activity requires translation of knowledge and its use. The use will be determined by the understanding and the experience gained, from the personality and others who have formed and distributed their knowledge (Smith and Paquette, 2010).

Knowledge creation rotates round the behavior of knowledge conversion. Rane (2002) and Barttacharya and Chaudhury (2004) maintain that the procedure of translation of creation of personal knowledge through casual sharing, moving from the level of personal knowledge to documented, enhancing codified knowledge to generate new tacit knowledge through critical thinking and effective sharing. Matthew (2003) sees that of specific significance in learning creation is the idea of sharing information, most particularly the implicit information that has not been classified. He further that the empowering agents of knowledge creation are information sharing comprehensive culture, authoritative structure which support cooperation, administration styles and learning systems. The objective is to encourage individuals contacts, for example, recognising experienced individuals who can share their insight and giving access to stores of knowledge.

Knowledge sharing is the essential methods through which workers can add to knowledge creation, application, and innovation (Sauchez, Sauchez, Colado-Ruiz and Cebrian-Tarrason, 2013). Along these lines, sharing information comprise a solid expertise to make learning if the library works in the fitting way. As indicated by Nonaka (2000), authoritative information creation and transformation depends on two measurements. The principal measurement demonstrates that just individual make knowledge, while the second measurement identifies with the collaboration among express and inferred information. It was these two measurements that structure the reason for characterising the four procedures of knowledge creation: socialisation is the procedure whereby unsaid learning is changed over into implied learning amid discourses and gatherings, externalisation includes the transformation of implicit learning into express information and laid out in the record, blend includes the transformation of unequivocal learning into another type of unequivocal information, while disguise process makes express learning to be changed over into inferred information by individual (Nonaka and Takeuchi, 1995; Jia, Soug Gen and Shi 2012; Sanchez et al., 2013)

The creation of knowledge is an uninterrupted course of action of dynamic exchanges between tacit and explicit knowledge. The application of tacit knowledge will leads to the creation of new and improved explicit knowledge. Sequentially, explicit knowledge is indispensable for inspiring new stage of tacit knowledge. All these interactions are linked with the twist of knowledge creation.

Speaking further on how librarians create and share knowledge, Jia et al (2012) emphasised the importance of humanistic mode among librarians. Humanistic mode refers to from one person to the other as a method of sharing and creation of knowledge. Librarians are professionals with work practice, skills and adequate knowledge.They have rich assets from number of reports in the time of working, summed up the jobs of recovery of archives and can get uncoded data. Library administrators can get a handle on the examination heading, inquire about patterns, creating jobs specifically territories, providing variable reference for research staff and so forth.

From the above arrays of responsibilities, librarians create and share knowledge. Islam et al (2017) established an indirect effect of knowledge creation and knowledge sharing among librarians in a survey of 107 librarians in 39 countries.Producing knowledge requires the presence of an individual or gathering of individuals who think of explicit data, aptitudes,

capacities or capabilities so as to get new ideas, inventive item or procedures and so on. It requires the utilisation of implied and expressed knowledge which are both fundamental for knowledge creation. It requires the use of tacit and explicit knowledge which are both essential for knowledge creation. Therefore, creating new knowledge is the result of the outcome of knowledge sharing processes.

2.14 Knowledge sharing and use by librarians in universities

Knowledge sharing is believed to be one of the essential aspects of knowledge management and it is considered a very crucial factor for organisations to survive. Yang and Wu (2008) posit that despite being crucial for organisational survival, it is somehow difficult to understand owing to its complication of interface between people and organisations. Fang, Jiang, Makino and Beamish (2010) assert that creating, transferring and sharing knowledge in organisations have become very important to stay competitive in today's business world. When knowledge is created, new knowledge are developed, it is very essential that such knowledge be shared. Creating knowledge without sharing it with employee in organisations will impede the organisational change and its having a competitive edge over their counterparts.

Awodoyin, Osisanwo, Adetoro and Adeyemo (2016) surveyed knowledge sharing behaviour pattern analysis of academic librarians in Nigeria. The study found among many other that librarians shared knowledge on scholarly outcomes and value, serial usage, and preservation of digital resources with colleagues. Similarly, the extent at which the librarians shared knowledge is high. Nine out of ten knowledge sharing indicators showed a significant and high mean value of $\bar{x} = 3.81$ and the lowest mean score was $\bar{x} = 2.77$

In a knowledge focused financial system, knowledge is forming the hub of competitiveness and growth for companies as well as nations (Lin, 2007, Yesil and Dereli, 2013). Hu et al (2009) stress that organisations and ventures can increase upper hand if just they can coordinate the knowledge, ability and aptitudes of their representatives and utilise the best administrative practices in their everyday tasks. This involves the sharing and the utilisation of learning, and changing of it into training.Wang and Noe (2010) argue that knowledge sharing is a technique wereby employee can add to knowledge, innovation and eventually the competitive benefit of the organisation. One can rightly say that knowledge sharing is one of the most critical ways through which library personnel can meet their needs at the quickest possible time by making use of others' knowledge and experience.

Senaphati (2011) posits that the word knowledge sharing and knowledge dissemination are used for one another. Speaking further on the dissemination and utilisation of knowledge, he maintained that the word spreading is a method requiring careful connection between the creation of knowledge and circumstance of its creation, the requirements, experience, value and believes of the recipients. It must be noted that the goal of all knowledge sharing should be the use. Although, use definition may be different to diverse audience. The critical component of use is that the result must be systematically digested, which its application must leads to further action (Senaphati, 2011).In spite of the fact that, utilisation may mean various things to various individuals from an intended interest group. The basic component of utilisation is that the result must be basically and completely processed, which its application must prompts further activity.

As a learning association, libraries ought to give a solid initiative in managing knowledge. Not like individuals business associations whose objective for managing knowledge is for profit making, academic have an alternate focus and value rather than competitiveness; internal utilisation and systematic sharing of information with others is their core value. The most significant mission of scholastic libraries is to broaden the entrance of learning for their clients. Charged by this mission libraries should point their insight the board objective high (Madaan, 2007).

Human information is developing on exponential rate in an assortment of configurations, libraries and librarians need to build up their assets access and sharing procedures from printed to electronic and computerized assets working together with their central goal and charges. Confined by restricted financing, innovation, staff and space libraries should cautiously break down the necessities of their clients and look to create helpful securing plans to address their issues. Changing idea from " Ownership" to "Access" ought to be the objective of sound assets advancement technique (Madaan, 2007).

Madaan (2007) maintains that an integrating OPAC with other resources in different formats must be created and managed by librarians. In addition, He avers that valuable sources of knowledge must be frequently searched and chosen from the Internet and integrated in OPAC by hard links (HTML). Libraries supposed to create ways to capture all personal knowledge that is valuable to their patrons, organisations and to the internal activities in their domain. Library websites can be used as portal to host pertinent knowledge and information in all formats. To

tackle this effectively, there is a need for an improved knowledge management system, which can enhance services to patrons for proficient use of knowledge to create new knowledge.

One of the most critical factors militating effective use of knowledge is that often knowledge bases are created anew. It is usually acquired and directed for problem-solving specifically designed to address (Bbojaraju, 2005). Specific utilisation of knowledge would permit more influence to be achieved from the knowledge already available, thus increasing the proceeds on the invested knowledge assets (Pooncothai, 2016). Using knowledge effectively is a core value of all successful organisations, regardless of whatsoever businesses they do or services they offer.

The critical purpose of knowledge sharing is to allocate the accurate information to the exact person at correct time. To achieve this, individual organisation engages different communicating channels. They include training sessions, seminars, conferences, workshops and staff meetings. One of the most excellent ways of sharing knowledge is meetings, where the people officially interact so as to find solution to problems, analysing experiences and opinions for decisions making. Other methods of sharing knowledge are video screening sessions, training sessions. Training programs permit the trainees to relate with oneanother.

2.15 Knowledge creation and use by librarians in universities

Knowledge is recognised as a strategic source for organisations to strengthen innovation in today's dynamic environment with a high level of uncertainty (Noor, Ismail, Ali and Arif, 2014). The first constituent of managing knowledge is to create knowledge. It is a constant activity group, organisations or corporations during the process ofrelating with one another (Uriate, 2008). Survival of any organisation from time to timemostly depends on how they can create knowledge and use it to generate attractive product or service. Uriate (2008) further asserts that creativity and innovation are utmost importance in determining competiveness. Similarly, he maintained that creating new knowledge will not difficult unless creativity and innovation is put in place. If skills are managed effectively, it can be used to realise other means of doing things, quicker method of effecting works, and easier methods of realisingpredetermined outcomes. Knowledge creation was observed by Suorsa and Huotari (2014) as a part of organisational information behavior and practice related to knowledge use and sharing in an event of interaction. Therefore, Knowledge sharing is a link between knowledge

creation and use, this is because a knowledge created and not shared will be limited, while knowledge created and shared but not use will be lost.

According to Sanchez et.al (2013), the changing of tacit knowledge into explicit called encoding, facilitate other knowledge management development such as storage, distribution andutilisation of knowledge. Knowledge use or application focused on how acquired knowledge must be applied in library environment. It's a way of making knowledge more dynamic and appropriate for an organisation in value creation (Yip, Ahmad and Jusoff, 2013). Knowledge use focused on how workers in organisation frequently relate their expertise to their operational circumstances. It should be emphasised that librarians need to make local knowledge useable in global application; this is the only way through which organisational knowledge assets can be employed into library processes, products, services and work performance (Yip, Ng and Din, 2012).

The creation and advancement of information is a significant and innate component of managing knowledge (Amayah, 2013). The production of knowledge is important for the continued existence of any organisation. Knowledge creation is an action that happens all through day by day exercises at work or in social setting (Omotayo, 2015). Knowledge creation happens in numerous powerful structures, which could be through humanistic methods or technical mechanisms. Organisations influence on their capacity to make information, advance and create an incentive with new learning. This is the new information that prompts new and inventive items, learning that improve interior procedures and tasks; or learning to improve the vital choices making capacities and bearing of the association (Omotayo, 2015). Hislop (2013) states that the capacity to make information and create competitive edge is presently basic for any organisations to stay practical in the market place.

Once knowledge had been created, it is important to note that for any actions demandingknowledge to be successful, it should be readily available and retrievable. Organisations must organise their facts so as to make it retrievable by the right individuals who need it. The consequences of not organising knowledge in a way that leads to retrieval and use can be severe (Omotayo, 2015). It should be noted that organisations are progressively competitivelyexploring intellectual property than physical resources; but those who ignore application of knowledge management techniques will experience difficult times. This is because when a librarian depart a library, all his/her knowledge assets leave with him unless drastic

measure are taken to discover, store and disseminate his knowledge in the library. The most excellent way to make sure an employees' knowledge is not vanished when such an employee relocate is by sharing of his/her knowledge. Olatokun and Nwafor (2012) describe knowledge sharing as a very activity of knowledge management practices. For knowledge to be used when it is formed, and as well provide value to the organisation, it must be disseminated within and amongteam-mates and colleagues. In order to overcome the problems related with knowledge loss when workersexperienced job mobility and alternative work provision, the library members must take responsibility to generate and disseminate knowledge and making personal commitment to spread it.

Similarly, the eventual purpose of managing knowledge is to maximise profit by efficiently improve itoperation, increase the capacity and value of innovations for work performance. On the other hand, this advantage cannot be realised unless knowledge created is used effectively in the library (Hislop, 2013).Islam et al (2017) reports that knowledge creation and use have significant effect on service innovation of librarians in academic libraries. Therefore, library workers must make reasonable effort to use the knowledgeavailable at different points of their operations for making decisions. The organisation's capability to appropriate its knowledge to vital business operations determines the business objectives of knowledge management programme and its real benefits. Therefore, using knowledge certainly requires the active involvement of all librarians naturally organised in work environments in the library (Dul, Ceylan and Jaspers, 2011).

2.16 Theoretical framework

Research on knowledge sharing has used varieties of theories. Among which are: Social Exchange Theory (SET), Social Cognitive Theory (SCT), Expectancy Theory (ET), Theory of Reasonable Action (TRA), Theory of Planned Behavior (TPB), and Knowledge-Based Theory of the Firm (KBT) However, this study is anchored on five theories which are: Social Exchange Theory (SET), Resource based View (RBV), Diffusion of Innovation Theory (DIT), Theory of Cognitive Fit (TCF) and Knowledge Utilisation Theory (KUT) to explain the variables in the study.

2.16.1 Social Exchange Theory

The derivation of Social Exchange Theory (SET) lies in study conducted by Homans (1958) and Blau (1964). In their unique meaning of Social Exchange Theory, Homans and Blau planned to clarify the rise of dyadic connections by methods for trade instruments. In SET, regardless of whether two people make, keep up, and break down system ties depends on the assets and qualities they have and need, which assets and properties they have and need, which assets different has and needs and the entrance they need to elective learning sources. The SET based its supposition that if there is a potential trade in assets between two individuals, for instance, the trading of information, at that point, the learning sharing system ties is made.

Social Exchange Theory is a significant hypothesis for the investigation of relational relationship. As per the hypothesis, relational communication is a procedure. All the while, different gatherings lead exercises and trade important assets with one another. The center of the hypothesis is the rule of correspondence to which the relational relationship follows. Prizes for the trade incorporate material prizes, yet in addition mental prizes, for example, support, trust, confidence and distinction.

Social Exchange Theory depends on two standards: (1) an on-screen character can be demonstrated as inspired by intrigue and rewards/disciplines and (2) most cooperation comprises of the trading of esteemed things (Jinyang, 2015). In particular, social trade hypothesis is profitable to clarifying nowledge sharing since library experts from various associations need to team up. The librarians have different information, so on a basic level they have something to offer one another. Be that as it may, while applying social trade hypothesis to the setting of information sharing, the clarification this hypothesis offers for knowledge sharing conduct would be that two people have information ties dependent on the information they possess and need, and whether they have elective hotspots for the learning they need. Therefore, social exchange theory application to this study assumed that when knowledge is shared among librarians, it will lead to creation of more knowledge, thereby fostering its utilisation, and creativity and innovation will be enhanced.

Furthermore, SET stated that individual strives to minimise expenditure and maximise rewards, and that they are likely to develop an association with somebody on a supposed possible outcomes. When the result are considered to be better, it will further reveal and develop relationship with the individual (Spring, 2001). The implication of this theory on this study

rested on the assumption that human being are bound to act in reciprocity. In other words, if one is likely to benefit some kind of favour from one, he/she would also offer you his/her favour, but if not, that favour will be withheld.

Therefore, librarians tend to build relationship by sharing knowledge most especially with an expectation of future returns. If a library culture therefore support knowledge sharing, more librarians will share both tacit and explicit knowledge, gain recognition, enhances the creation of new knowledge and its use, thereby facilitate creativity and innovation of librarians

2.16.2 Resource-Based View of the Firm

The Resource Based View (RBV) state that the property owned by a firm is a principal determinant of its achievement, and could have a say in establishing competitive advantage of the firm (Hoffer and Schendel, 1978). Barney (1991) posits that resources of an organisation includes the possessions, capabilities, organisational processes, firm information, knowledge etc. used by firm to advance its competence and efficiency.

Amit and Shoemaker (1993) characterised assets as supplies of accessible components that are possessed or constrained by the firm, which are changed over into specific products and services.Abilities allude to a company's capability to convey assets utilising hierarchical procedures to create impact. Henceforth, the existence of capacity makes assets to be utilised and it offers ascend to creation yield.

The RBV proposes that upper hand and execution results are an outcome of firm-explicit assets and abilities that are exorbitant to duplicate by different contenders (Barney, 1991). The application of RBV into this study hindged on the fact that knowledge is a resource which operates personal level, the integration of knowledge therefore is the fundamental job of an organisation / libraries. Moreover, the application of RBV to this study rested on the two assumptions: first, that knowledge creation is a personal activity; second, that the major responsibility of libraries is in the deployment of existing knowledge to produce services which will eventually lead to creativity and innovation of librarians.

Furthermore, the theory sees knowledge as an asset and a resource. The present study is looking at some aspect of knowledge management activities: knowledge creation, sharing and use. If knowledge is an asset, then it is a resource that can be employed to enhance the creativity

and innovation of librarians. Premised on this theory, the present study discusses the prediction of knowledge management process on the creativity and innovation indicators of librarians.

2.16.3 Diffusion of Innovation Theory

Diffusion of Innovation Theory (DIT) perceived innovation as a means of behavioural alteration, and it is therefore used to explain the construct of innovation in this study. As a result, it is apparent attribute of innovation that dictates its extent of implementation than the behavour of the adopters. Initially available in 1962, DIT has consequently been extensively applied to issues relating to health, marketing and development (Greenhalgh et al. 2004). DIT emphasises four major elements that facilitate change in behaviour. These are time,communication channels, social systems and innovation (Rogers, 2003). The theory further posit that behaviour will change rapidly if innovations are considered as being improved than earlier options and constant with the obtainable values, needs and experience of prospective adopters, expecially when they are simple to comprehend, testable through few trials and their results noticeable. Various channels communication has definite impacts when it comes to innovation diffusion. Therefore, close interpersonal interactions fundamental in innovation application among librarians. Furthermore, the adoption of DIT to the present investigation is also based on the construct of marketing information products and services as a parameter for measuring innovation of librarians.

2.16.4 Theory of Cognitive Fit

Vessey (1991) view cognitive fit as a result of the affiliation between problem identification and the task of solving problems. When problem solving factors match; i.e. when problem symbol aligns with the problem-solving in information format, the problem-solving presentation will be established. Therefore, problem solving with cognitive fit leads to more effective problem-solving outcmes. This theory is used to explain the process of idea creation (Creativity) and idea achievement (Innovation) of librarians to solve organisation problem. Creativity start with problem identification when a challenge in library practice is identified, it leads to problem representation and the application of the process among the librarians will leads to problem-solving, which in-turn leads to organisational capabilities.

2.16.5 Knowledge Utilisation Theory

Information Utilisation Theory (KUT) inserts itself in both assessment hypothesis and program assessment standard. It has its underlying foundations at the crossing point of science and reasoning and consequent effects of use of knowledge in scholarly work (Baker, 1991). Information usage model has been assembled by field, kind of end client and substance. The key logical effects on knowledge use incorporate the job of end clients, timing, assets, social conditions, authority and correspondence. One of the targets of this investigation is todetermine the level of knowledge use by the librarians as well as develop a method that will permit increased understanding of the flow of use of knowledge among librarians.

2.17. Conceptual model

A framework is a theoretical and stylised sequence of investigative ideas aimed to direct the investigate plan. It is an explanation of the interrelationships among the variables or concepts involved in a study. A concept is an idea or an abstract expression of something and a framework is a supporting structure around which that concept can be built. In this study, the conceptual framework in Figure 2.1 is explained using diagram to highlight the relations between the dependent and independent variables.The model proposes a number of interactions between the independent variables of the study (knowledge creation, sharing and use) and the dependent variables (creativity and innovation) of librarians in the federal university libraries in Nigeria. Therefore, this study proposes that knowledge creation sharing and use will predict the creativity and innovation of librarians as indicated in Figure 2.1. This conceptual framework also serves as guide for the pattern of literature adopted for this study.

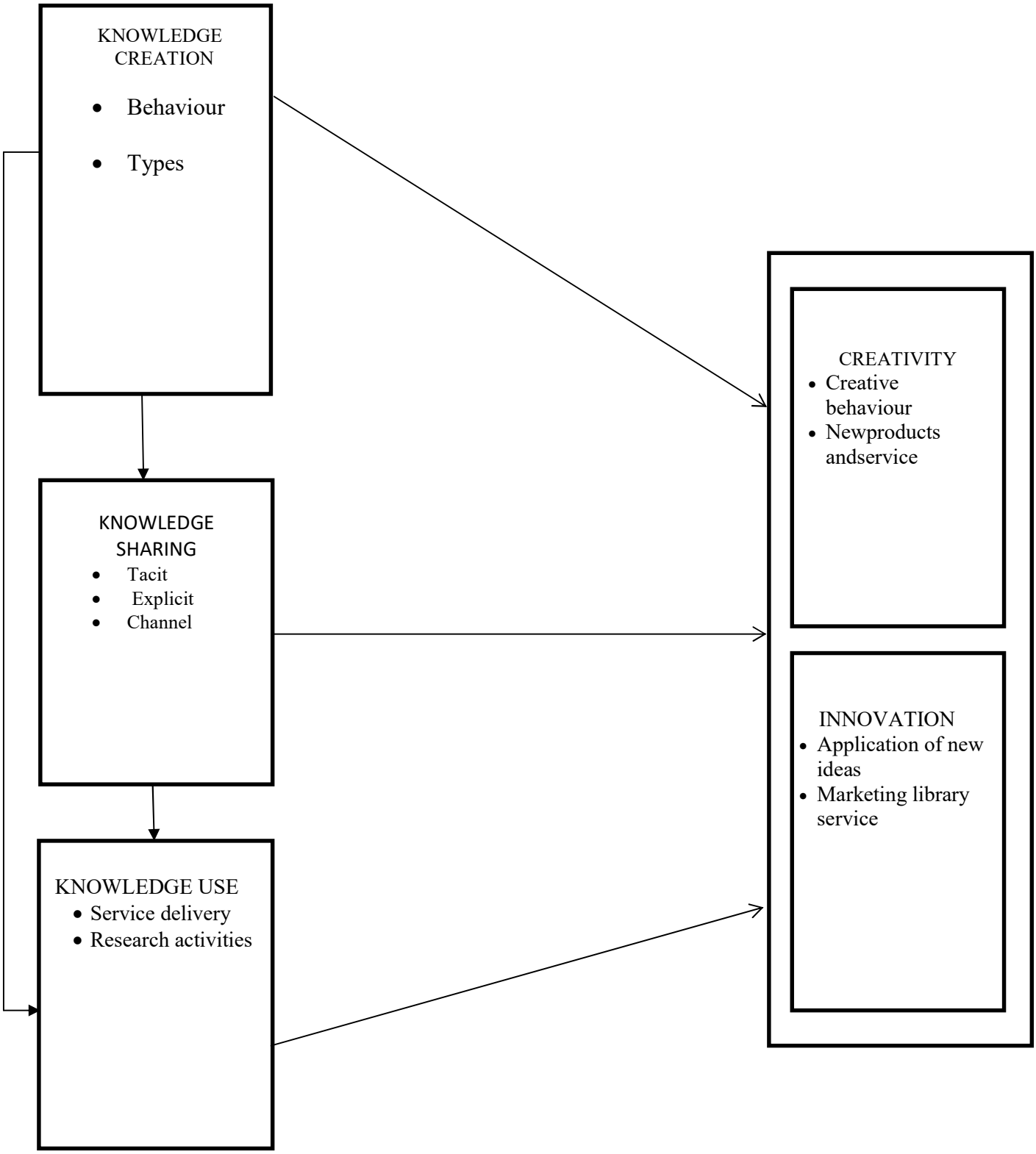

Figure 2.1: Conceptual model of creativity and innovation of librarians in university libraries as developed by the researcher.

2.18 Appraisal of the literature reviewed

Literature was reviewed on knowledge creation, sharing, use, creativity and innovation of librarians. The review of existing literature showed that knowledge creation play crucial role in the determination of creativity of librarians. Reviewed literature equally showed that innovation of librarians demands effective and efficient sharing of knowledge. Therefore, lack of knowledge sharing and use of knowledge can be seen as factor militating against creative ability of librarians, the reason is because knowledge sharing is seen as an enabler of knowledge creation. Also, the literature reviewed has revealed the constraints affecting creativity and innovation of librarians in the university libraries. It has also showed the relative importance of knowledge sharing as predictors of knowledge creation and as enabler of knowledge use within the university academic libraries.

Literature reviewed on knowledge use as predictors of creativity and innovation of librarians shows that there were not enough scholarly materials on this aspect, though there are few empirical evidence with regards to knowledge use by librarians. Similarly, there was scanty of literature on knowledge creation by librarians. Much of literature reviewed on knowledge creation by librarians had to be coined from knowledge creation in manufacturing companies. This study therefore will provide literature most especially to researchers who might want to further research on this area. Though there have been studies in the area of knowledge sharing and innovation of librarians in research and from library environment, no study has addressed how knowledge creation, sharing and use predicted creativity and innovation of librarians in the federal universities in Nigeria. It is this gap that this study therefore is attempting to fill.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the methodology that was used in carrying out this study. The methodology is discussed under the following sub-headings: research design, population of the study, sampling techniques and sample size, research instruments, validity and reliability of the research instrument, data collection procedure and method of data analysis.

3.2 Research design

The research design employed in this study is descriptive survey of the correlational type. It is a scientific method which involves observing and describing the behaviour of a subject without influencing it in any way. The advantage of survey method is that it is broad in scope and permit a great deal of information to be derived from a large population as data collection may be spread over a large geographical area. Survey method is considered appropriate for this study because it established the relationship between variables in the study (Ifidon and Ifidon, 2007). In the same vein, survey method is used in multi-variate studies; this study is multi-variate in nature because it examined the following variables; knowledge creation, knowledge sharing, knowledge use, creativity and innovation of librarians, hence, the choice of descriptive survey of correlational type. This study also used the design because it enables the researcher in formulation of generalisation. The intention of the researcher is to determine the relationship between independent and dependent variables. The independent variables in this study are knowledge creation, sharing, and use while the dependent variables are creativity and innovation of librarians in federal university libraries in Nigeria. Therefore, the research design is considered appropriate for this study because it gives a better perceptive of the extent of connection existing among the variables of the study.

3.3 Population of the study

The study was conducted in the federal universities in Nigeria. At the time of the study (2019), there are forty (40) federal universities in Nigeria. The forty federal universities are located in all the six (6) geo-political zones in Nigeria. The target population of this study are the

librarians who possessed a minimum of bachelor degree in library and information science. The total population is 654 librarians, (Table 3.1.).

Table 3.1 Population of the Librarians in Federal Universities in Nigeria

S/N	Federal universities	Librarians
1.	Abubakar Tafawa Balewa University, Bauchi	20
2.	Ahmadu Bello University, Zaria	42
3.	BayeroUniversity,Kano	14
4.	Federal University Gashua, Yobe State	10
5	Federal University of Agriculture, Abeokuta	23
6.	Federal University of Petroleum Resources,Efunrun	08
7.	Federal University of Technology, Akure	13
8.	Federal University of Technology, Minna	22
9.	Federal University of Technology, Owerri	25
10.	Federal University, Dutse, Jigawa State	16
11.	Federal University, Dutsin-Ma, Katsina State	11
12.	Federal University, Kashere, Gombe State	05
13.	Federal University, Lafia, Nasarawa State	07
14.	Federal University, Lokoja, Kogi State	15
15.	Federal University, Ndufu-Alike, Ebonyi State	05
16.	Federal University, Otuoke, Bayelsa State	9
17.	Federal University, Oye-Ekiti, Ekiti State	5
18.	Federal University, Wukari, Taraba State	10
19.	Federal University,Birnin-Kebbi, Kebbi State	07
20.	Federal University,Gusau, Zamfara State	05
21.	Michael Okpara University of Agriculture, Umudike	11
22.	ModibboAdama University of Technology, Yola	8
23.	National Open University of Nigeria, Lagos	24
24.	Nigerian DefenceAcademy,Kaduna	10
25	NnamdiAzikiwe University, Awka	16
26.	Obafemi AwolowoUniversity,Ile-Ife, Osun State	23

27.	The Police Academy Wudil, Kano State	08
28.	University of Abuja, Gwagwalada	12
29.	University of Agriculture, Makurdi	16
30.	University of Benin, Benin-City	14
31.	University of Calabar, Cross River State	22
32.	University of Ibadan, Ibadan	30
33.	University of Ilorin, Ilorin	23
34.	University of Jos, Plateau State	13
35.	University of Lagos, Akoka, Lagos State	18
36.	University of Maiduguri, Borno State	21
37.	University of Nigeria, Nsukka	50
38.	University of Port-Harcourt, Rivers State	15
39.	University of Uyo, Akwa Ibom State	25
40.	Usman Danfodiyo University, Sokoto State	22
	Total	**654**

Source: Conference of University Librarians (CULNU, November 2015) and Personal Contact

3.4 Sampling techniques and samplesize

Total enumeration technique was adopted to cover all the 654 librarians working in 40 federal universities in Nigeria. The reasons being that the population size was small and the available research budget of the researcher permited it.

3.5 Research instruments

The data collection instrument for this study was the questionnaire for librarians to elicit information on the variables of study. The questionnaire was Knowledge creation, knowledge sharing, knowledge use, creativity and innovation. The questionnaire was divided into sixsections. The questionnaire is designed to capture Knowledge Creation, Sharing, Use, Creativity and Innovation by librarians in federal universities in Nigeria. The sections are: A, B, C, D, E and F (see Apendix I).

Section A: Demographic profile of the respondents

Section B: Knowledge creation by librarians in federal universities.

Section C: Knowledge sharing by librarians in Nigerian federal universities.

Section D: Knowledge use by librarians in Nigerian federal universities.

Section E: Creativity by librarians in Nigerian federal universities.

Section F: Innovation by librarians in Nigerian federal universities.

Section A: This covered information on the demographic profile of the librarians such as name of the library, name of the university, year the library was established, academic status, marital status, age, highest qualification, years of work experience, and section where they work in the library. It consists of 11 items.

SectionB elicited information on the knowledge creation by librarians. This section has two sub-scales. The first sub-section was adopted from Popoola (2015) to capture knowledge creation by librarians. This section consists of thirteen (13) items on a four points Likert scale rating with ranked options: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (DA) = 2 and Strongly Disagree (SD) = 1. Respondents chose that which is applicable to them. The typical example of items in this sub-section are: "I introduce information services to meet users' needs, and most often times", "I introduce new formula for solving problems".

The second sub-section was self-developed by the researcher to capture types of knowledge created by librarians. It contains 21 items on a four points Likert scale rating with ranked options: SA = 4; A = 3; DA = 2; to SD = 1. Respondents ticked that which is applicable to them. Typical example of the items on knowledge created by librarians are: library software development, pricing new information service and writing conference papers.

Section C captured information on knowledge sharing by librarians. This section has two sub-scales. The first sub-scale was adapted from Okonedo and Popoola (2012) and Onifade (2014) and modified to measure knowledge sharing behaviour by librarians. This first sub-section consists of 32 items on a four points Likert scale rating with ranked options: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (DA) = 2 to Strongly Disagree (SD) = 1. Respondents ticked that which is applicable to them. The typical examples of items are: "I can use the

experience of others in finding solution to problems I encounter on the job", and "I share knowledge about new trends in librarianship with my colleagues".

The second sub-section measured channel of knowledge sharing among librarians. It contains 37 items with four points Likert scale rating with ranked options: SA = 4; A = 3; DA = 2; to SD = 1. The typical examples of items are: "I share knowledge through personal interaction" and "I share knowledge through e-mail".

Section D elicited information on knowledge use by librarians. This instrument was adapted from Okonedo and Popoola (2012). It contains 15 items with four points Likert scale rating with ranked options: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (DA) = 2 and Strongly Disagree (SD) = 1. Respondents ticked that which is applicable to them. Examples of items include: "to publish more scholarly papers" "to enhance work performance, generate new research skills".

Section E captured information on creativity behaviuor of librarians. The scale was adapted from Kumar (2010) and modified to generate needed data for the study. The measuring scale contains 27 items with four points Likert scale rating with ranked options: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (DA) = 2 and Strongly Disagree (SD) = 1. Respondents ticked that which is applicable to them. The typical examples of items are: "I am sure that I can creatively carry out different tasks at work", and "I exhibit originality in carrying out my duties".

Section F measuredinnovation behaviour of librarians. The scale was adapted from Hurt, Joseph, and Cook(1977) to elicit information on innovative behaviour of the librarians. The first part contains 30 items with four points Likert scale rating with ranked options: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (DA) = 2 and Strongly Disagree (SD) = 1. Respondents ticked that which is applicable to them. The typical examples of items are: "I always inject new product and/or services to my work schedule each day" and "I spend all my time on implementing new services".

The second sub-sectionwas adopted Salami(2014) to measure innovative techniques for marketing library products and services among librarians. It contains 15 items with four points Likert scale rating with ranked options: SA = 4; A = 3; DA = 2; to SD = 1. The typical examples of items are: "Marketing library products and services is done by organising library week" and

"through exhibitions and display of new arrivals".

3.6 Validity and reliability of the research instrument

The data collection instrument went through face validity check by the project supervisor and four experts in the Departments of Library Archival and Information Studies, Guidance and Counselling and Geography, all from the University of Ibadan and a University Librarian in Nigeria, who gave invaluable advice on how to improve it. Content validity was also established through the conduct of pre-test of the final draft of the questionnaire by administering 30 copies of corrected version of questionnaire among six librarians in each of the following five state universities libraries in Nigeria, namely: Ekiti State University (EKSU), Olabisi Onabanjo University (OOU) Ago Iwoye, Osun State University (UNIOSUN), Ladoke Akintola University of Technology (LAUTECH) Ogbomoso, and Kwara State University (KWASU), Malete. Cronbach-Alpha reliability method was used to establish the reliability coefficients of each of the sub-sections. The reliability coefficient of section B tagged: Knowledge creation by librarians was 0.87, section C tagged: Knowledge sharing by librarians ws 0.85, the reliability coefficient of channel of knowledge sharing was 0.98, section D tagged: Knowledge use by librarians was 0.88, section E tagged: Creativity by librarians was 0.94 while section F tagged: Innovation by librarians was 0.75 respectively. The reliability test result revealed that all the sub-sections of the instrument were strongly reliable to elicit the needed data for the study.

3.7 Data collection procedure

A total of 654 copies of the questionnaire was distributed to the librarians in the 40 federal universities in Nigeria. A letter of introduction was collected from the Head, Department of Library, Archival and Information Studies (LARIS), University of Ibadan, which introduced the researcher to the university libraries. Nine research assistants who were trained in the art of administration of the questionnaire were employed by the researcher. The period of distribution and collection of the instrument was nine months.

3.8 Method of data analysis

The use of Statistical Package for Social Sciences (SPSS) was employed for data analysis. Specifically, descriptive statistics of frequency count, percentages, mean and standard deviation was employed to analyse research questions 1-7 and 10 raised in this study. Multiple

regression was used to analyse research questions 8-9. For the testing of the null hypotheses formulated in this study, Simple correlation analysis based on Pearson's Product Moment Correlation Coefficient method was used to analyse hypotheses 1-9 postulated for this study, while multiple regression analysis was used to analyse hypotheses 10 and 11 at P-value 0.05 level of significance.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presented the results of the data analysis and discussed the findings of the study. The findings were presented in descriptive form using frequencies, percentages, tables, mean and standard deviations. The sequences of presentations were presented with the bio-data of the respondents, the research questions and the hypotheses. The hypotheses were tested using Pearson Product Moment Correlation and Multiple Regression Analysis.

4.2 Questionnaire administration and response rate

A total of 654 copies of the questionnaire were distributed to the respondents in the 40 federal university libraries in Nigeria, out of which 518 were retrieved and found usable, giving a response rate of 79.2%. Table 4.1 presents data/information on the copies of questionnaire distributed and retrieved.

Table 4.1 Questionnaire administration and response rate

S/N	Universities	No Administered	No Retrieved	Response Rate (%)
1	Abubakar Tafawa Balewa University Library, Bauchi	20	15	75.0
1	Amadu Bello University Library, Zaria	42	31	73.8
3	Bayero University Library, Kano	14	11	78.6.
4	Federal University Library, Birin-kebbi	07	07	100.0
5	Federal University Library, Dutse	16	13	81.3
6	Federal University Library, Dutsin-Ma	11	10	90.9
7	Federal University Library, Gashua	10	07	70.0
8	Federal University Library, Gusau	05	04	80.0
9	Federal University Library, Kashire	05	05	100.0
10	Federal University Library, Lafia	07	07	100.0
11	Federal University Library, Lokoja	15	09	60.0
12	Federal University Library, Ndufu-Alike	05	04	80.0
13	Federal University Library, Otuoke	09	09	100.0
14	Federal University Library, Oye-Ekiti	05	05	100.0
15	Federal University Library, Wukari	10	08	80.0
16	Federal University of Agriculture Library, Abeokuta	23	17	73.9
17	Federal University of Petroleum. Resource Library, Efurun	08	07	87.5
18	Federal University of Technology Library, Minna	22	16	72.7
19	Federal University of Technology Library. Akure	13	08	61.5
20	Federal University of Technology Library. Owerri	25	17	68.0
21	Michael Okpara University of Agriculture Library. Umudike	11	09	84.8
22	Moddibbo Adama University of Technology Library, Yola	08	06	75.0
23	National Open University of Nigeria, Abuja	24	17	70.8
24	Nigerian Defence Academy Library, Kaduna	10	09	90.0
25	Nnanmdi Azikwe University Library, Akwa	16	14	87.5
26	Obafemi Awolowo University Library, Ile-Ife	23	18	78.3

27	The Police Academy Library, Wudil	08	06	75.0
28	University of Abuja Library, Abuja	12	12	100.0
29	University of Agriculture Library. Makurdi	16	12	75.0
30	University of Benin Library, Benin	14	12	85.7
31	University of Calabar Library, Calabar	22	16	72.7
32	University of Ibadan Ibadan, Ibadan	30	25	83.3
33	University of Ilorin Library, Ilorin	23	22	95.7
34	University of Jos Library, Jos	13	11	84.6
35	University of Lagos Library, Lagos	18	14	77.8
36	University of Maiduguri Library, Maiduguri	21	18	85.7
37	University of Nigeria Library, Nssuka	50	34	68.0
38	University of Port Harcourt, Library, Port Harcourt	15	13	86.7
39	University of Uyo Library, Uyo	25	23	92.0
40	Usman Dan fodio University Library, Sokoto	22	17	77.3
	TOTAL	**654**	**518**	**79.2**

4.3 Demographic profile of respondents

Demographic profile (Job status, gender, marital status, age range, highest academic qualification, how long have you been working in this library, section and year of work experience) of the respondents were analysed using descriptive statistics (frequency counts and percentages) and the result is presented in Table 4.2.

Table 4.2: Demographic characteristics of the respondents

Job Status	**Frequency**	**Percentage**
Assistant Librarian	109	21.0
Librarian II	134	25.9
Librarian I	111	21.4
Senior Librarian	85	16.4
Principal Librarian	51	9.8
Deputy Librarian	23	4.4
University Librarian	5	1.0
Gender	**Frequency**	**Percentage**
Male	306	59.1
Female	212	40.9
Marital Status	**Frequency**	**Percentage**
Single	81	15.6
Married	432	83.4
Divorced	1	0.2
Separated	1	0.2
Widowed	3	0.6
Age	**Frequency**	**Percentage**
20-29 years	22	4.2
30-39 years	225	43.4
40-49 years	153	29.5
50-59 years	97	18.7
60-69 years	21	4.1
Highest Academic Qualification	**Frequency**	**Percentage**
Ph.D.	70	13.5
M.Phil	29	5.6
Master	325	62.7
Bachelor	94	18.1
Years of Work Experience	**Frequency**	**Percentage**
1-9 years	320	61.8
10-19 years	117	22.6
20-29 years	44	8.5
30-39 years	36	6.9
40-49 years	1	0.2
Section	**Frequency**	**Percentage**
Management Unit	55	10.6
Cataloguing/Classification Unit	104	20.1
Acquisition Unit	70	13.5
Circulation Unit	85	16.4
Reference Unit	62	12.0
Virtual Unit	13	2.5
Reprographic Unit	31	6.0
IT & Computer Section Unit	41	7.9
Serial Unit	43	8.3
Audio-Visual	14	2.7
Years of work experience	**Frequency**	**Percentage**
1-9 years	243	46.9
10-19 years	157	30.3
20-29 years	72	13.9
30-39 years	40	7.7
40-49 years	4	0.8
50 + years	2	0.4
Total	**518**	**100.0**

Table 4.2 reveals the demographic characteristics of the respondents. The job status showed that 134(25.9%) were Librarian II, 111(21.4%) were Librarian I, 109(21.0%)

respondents were Assistant Librarians, 85(16.4%) were Senior Librarians, 51(9.8%) were Principal Librarians, 23(4.4%) were Deputy Librarians and 5(1.0%) were University Librarian respectively. The gender of the respondents showed that 306(59.1%) were males and 212(40.9%) were females. The marital status of the respondents revealed that 432(83.4%) were married, while 81(15.6%) were single. The distribution of the respondents by age showed that 225(43.4%) were 30-39 years, 153(29.5%) were 40-49 years, 97(18.7%) were 50-59 years, 22(4.2%) were 20-29 years, and 21(4.1%) were 60-69 years respectively The highest academic qualification revealed that 325(62.7%) had Master degree certificates, 94(18.1%) had Bachelor degree certificates, 70(13.5%) had Ph.D. certificates while 29(5.6%) had M.Phil degree certificates respectively.

The responses of the respondents on working experience in their library showed that 320(61.8%) had been working in their current library for 1-9 years, 117(22.6%) had been working in their current library for 10-19 years, 44(8.5%) had been working in their current library for 30-39 years and 1(0.2%) had been working in their library for 40-49 years. Responses received on section where they worked in the library revealed that 104(20.1%) worked in the Cataloguing/Classification Unit, 85(16.4%) worked in the Circulation Unit, 70(13.5%) worked in the Acquisition Unit, 62(12.0%) worked in the Reference Unit, 55(10.6%) worked in the Management Unit, 43(8.3%) worked in the Serial Unit, 41(7.9%) worked in the IT and Computer Unit, 31(6.0%) worked in the Reprographic Unit, 14(2.7%) worked in the Audio-Visual Unit and 13(2.5%) worked in the Virtual Unit respectively. The result of years of work experience showed that 243(46.9%) had 1-9 years work experience, 157(30.3%) had 10-19 years work experience, 72(13.9%) had 20-29 yearswork experience, 40(7.7%) had 30-39 yearswork experience, 4(0.8%) had 40-49 years work experience and 2(0.4%) had 50 and above years of work experience.

The implication of the demographic characteristics of the respondents to the study is that it should enhance the creativity and innovation of the librarians. Specifically, job status, gender, marital status and age of the respondents should not be inhibitors to creativity and innovation of the librarians. Similarly, highest academic qualification, job tenure and sections where librarians work should not be a barrier to creativity and innovation of the librarians. Hence, demographic status of the librarians should propel them to display creativity as well as innovation in work place.

4.4. Research questions analysis

In this section, attempts are made at answering the research questions formulated for this study.

Research question one: What is the level of knowledge creation by librarians in federal universities in Nigeria?

Table 4.3 revealed the level of knowledge creation by librarians in federal universities in Nigeria.

Table 4.3: Level of knowledge creation by librarians in federal universities in Nigeria

S/N	Knowledge creation in work place	SD	D	A	SA	$\bar{x}$	S.D
1	I generate new ideas to improve business operations and methods	16 (3.1%)	19 (3.7%)	284 (54.8%)	199 (38.4%)	3.29	0.68
2	Ideas from colleagues has helped me to generate new ideas	14 (2.7%)	42 (8.1%)	270 (52.1%)	192 (37.1%)	3.24	0.71
3	Often times, I introduce new services for solving problems	7 (1.4%)	30 (5.8%)	323 (62.4%)	158 (30.5%)	3.22	0.61
4	Through intuition, I introduce new services to meet user' needs	28 (5.4%)	45 (8.7%)	293 (56.6%)	152 (29.3%)	3.10	0.77
5	I create new techniques leading to the production of new information products for internal use	15 (2.9%)	67 (12.9%)	325 (62.7%)	111 (21.4%)	3.03	0.68
6	My suggestions at meetings assist the management to formulate new business strategies	25 (4.8%)	78 (15.1%)	273 (52.7%)	142 (27.4%)	3.03	0.79
7	In work group, we regularly compile bibliographies on various subjects of interest to users	21 (4.1%)	94 (18.1%)	260 (50.2%)	143 (27.6%)	3.01	0.79
8	Occasionally, I introduce knowledge packaging techniques for formalising workers' experiences, new ideas, information, insight, intuition	24 (4.6%)	91 (17.6%)	30 (59.1%)	97 (18.7%)	2.92	0.74
9	I identify new search engines for searching information on the internet	24 (4.6%)	124 (23.9%)	250 (48.3%)	120 (23.2%)	2.90	0.80
10	I am instrumental to creating databases and databanks for library users	30 (5.8%)	119 (23.0%)	250 (48.3%)	119 (23.0%)	2.88	0.82
11	I usually reconfigure existing information and documented expertise, experiences, insight and intuition through sorting, adding and re-categorising for my library	22 (4.2%)	113 (21.8%)	288 (55.6%)	95 (18.3%)	2.88	0.75
12	I discovered new approach for	53	165	213	87	2.64	0.88

	dealing with computer virus and data loss in my library	(10.2%)	(31.9%)	(41.1%)	(16.8%)		
13	I rarely give expert advice leading to better planning and decision making	88 (17.0%)	162 (31.3%)	185 (35.7%)	83 (16.0%)	2.51	0.95
	Weighted Mean = 2.97						

Table 4.3 presents information on the level of knowledge creation by librarians in federal universities in Nigeria. Going by the test norm of knowledge creation scale See (Appendix II), a score of 1-17, indicating low knowledge creation, 18-34, moderate knowledge creation and 35-52, high knowledge creation of the respondents. Since the overall mean score ($\bar{x}$ =38.64. SD =5.97) of the respondents falls within the interval 35-52, one can infer that the knowledge creation of the respondents is high. The reason is because majority of the respondents claimed that: they generate new ideas to improve business operations and methods; ideas from colleagues have helped them to generate new ideas; they often times introduce new services for solving problems. Through intuition introduce new services to meet users' needs and create new techniques leading to the production of new information products for internal use.

The librarians suggestions and input at meetings assist the management to formulate new business strategies; and in their workgroup, they regularly compile bibliographies on various subject of interest to users; occasionally introduce knowledge packaging techniques for formalising workers' experiences, new ideas, information, insight, intuition; identify new search engines for searching information on the internet; are instrumental in creating databases and databanks for library users.

The librarians usually reconfigure existing information and documented expertise, experiences, insight and intuition through sorting, adding and re-categorising for their library; usually reconfigure existing information and documented expertise, experiences, insight and intuition through sorting, adding and re-categorising for their library and that they discovered new approach for dealing with computer virus and data loss in library. This result implies that librarians are engaged in different knowledge creation skills, which in turns positively affected their level of knowledge creation.

Research question two: What are the types of knowledge created by librarians in federal universities in Nigeria?

Types of knowledge created by librarians are as presented in Table 4.4.

Table 4.4 Types of knowledge created by librarians in federal universities in Nigeria

S/N	Types of knowledge created	SD	D	A	SA	$\bar{x}$	S.D
1	Bibliographic compilation	28 (5.4%)	52 (10.0%)	285 (55.0%)	153 (29.5%)	3.09	0.78
2	Publishing in high impact journal	31 (6.0%)	93 (18.0%)	244 (47.1%)	150 (29.0%)	2.99	0.84
3	Writing conference papers	40 (5.8%)	79 (15.3%)	282 (54.4%)	127 (24.5%)	2.98	0.79
4	Producing technical reports	36 (6.9%)	84 (16.2%)	267 (51.5%)	131 (25.3%)	2.95	0.83
5	Current listing of literature	40 (7.7%)	83 (16.0%)	271 (523.%)	124 (23.9%)	2.92	0.84
6	Writing chapter(s) in book in LIS field	36 (6.9%)	115 (22.2%)	231 (44.6%)	136 (26.3%)	2.90	0.87
7	Cataloguing African and Nigerian publications in online cataloguing	45 (8.7%)	119 (23.0%)	222 (42.9%)	132 (25.5%)	2.85	0.90
8	Online charting	52 (10.0%)	101 (19.5%)	245 (47.3%)	120 (23.2%)	2.84	0.90
9	Publishing textbook in LIS field	42 (8.1%)	123 (23.7%)	229 (44.2%)	124 (23.9%)	2.84	0.88
10	Designing course curricula	45 (8.7%)	129 (24.9%)	216 (41.7%)	128 (24.7%)	2.82	0.90
11	Producing monographs	43 (8.3%)	130 (25.1%)	236 (45.6%)	109 (21.0%)	2.79	0.87
12	Digital reference service	52 (10.0%)	123 (23.7%)	243 (46.9%)	100 (19.3%)	2.75	0.88
13	Creation of password for information security	54 (10.4%)	159 (30.7%)	193 (37.3%)	112 (21.6%)	2.70	0.92
14	Preparing library budget	55 (10.6%)	146 (28.2%)	216 (41.7%)	101 (19.5%)	2.70	0.90
15	Pricing new information service	52 (10.0%)	163 (31.5%)	221 (42.7%)	82 (15.8%)	2.64	0.87
16	Building cost models for information service delivery	70 (13.5%)	172 (33.2%)	182 (35.1%)	94 (18.1%)	2.58	0.94
17	Translation service	66 (12.7%)	172 (33.2%)	198 (38.2%)	82 (15.8%)	2.57	0.90
18	Developing formula for budget preparation	69 (13.3%)	188 (36.3%)	185 (35.7%)	76 (14.7%)	2.52	0.90
19	Library software development	71 (13.7%)	205 (39.6%)	154 (29.7%)	88 (17.0%)	2.50	0.93
20	Web page design	74 (14.3%)	192 (37.1%)	177 (34.2%)	75 (14.5%)	2.49	0.91
	Weighted Mean = 2.77						

Table 4.4 shows the rating of the responses on the types of knowledge created by librarians in federal universities in Nigeria. Bibliographic compilation ($\bar{x}$ = 3.09. SD =.98) was the major knowledge created and was followed by Publishing in high impact journal ($\bar{x}$ = 2.99. SD =.84), Writing conference papers ($\bar{x}$ = 2.98. SD =.79), Producing technical reports ($\bar{x}$ =2.95. SD =.83), Current listing of literature ($\bar{x}$ = 2.92. SD =.84) and Writing chapter(s) in book in LIS field ($\bar{x}$ = 2.90. SD =.87).

Others are Cataloguing African and Nigerian publications in online cataloguing ($\bar{x}$ = 2.85. SD =.90), Online charting ($\bar{x}$ = 2.84. SD =.90), Publishing textbook in LIS field ($\bar{x}$ = 2.84. SD =.88), Designing course curricula ($\bar{x}$ = 2.82. SD =.90), Producing monographs ($\bar{x}$ = 2.79. SD =.87), Digital reference service ($\bar{x}$ = 2.75. SD =.88), Creation of password for information security ($\bar{x}$ = 2.70. SD =.92), Preparing library budget ($\bar{x}$ = 2.70. SD =.90), Pricing new information service ($\bar{x}$ =2.64. SD =.87), Building cost models for information service delivery ($\bar{x}$ = 2.58. SD =.94), Translation service ($\bar{x}$ =2.57. SD =.90), Developing formula for budget preparation ($\bar{x}$ = 2.52. SD =.90), Library software development ($\bar{x}$ = 2.50. SD =.93) and Web page design ($\bar{x}$ = 2.49. SD =.91) respectively. The type of knowledge created by librarians in federal universities in Nigeria clearly positioned librarians as not only the managers of arrays of explicit knowledge of others, but, also knowledge creators.

Research question three: What is the level of knowledge sharing by the librarians in federal universities in Nigeria?

The level of knowledge sharing is as presented in Table 4.5.

Table 4.5 Level of knowledge sharing behaviour by the librarians in federal universities in Nigeria

S/N	Knowledge sharing behaviour	SD	D	A	SA	$\bar{x}$	S.D
1	I think librarians should have access to experience of one another in this library	5 (1.0%)	8 (1.5%)	243 (46.9%)	262 (50.6%)	3.47	0.58
2	I share work skills got from document on job related matter with my colleagues	7 (1.4%)	5 (1.0%)	253 (48.8%)	253 (48.8%)	3.45	0.59
3	I share my experience about cataloguing and classification with colleagues	13 (2.5%)	22 (4.2%)	282 (54.4%)	201 (38.8%)	3.30	0.67
4	I share new library experience with my colleagues	6 (1.2%)	13 (2.5%)	320 (61.8%)	179 (34.6%)	3.30	0.57
5	I share lessons learnt with my colleagues through interpersonal interaction	12 (2.3%)	19 (3.7%)	305 (58.9%)	182 (35.1%)	3.27	0.64
6	I share insight with my colleagues whenever I am asked to	10 (1.9%)	25 (4.8%)	300 (57.9%)	183 (35.3%)	3.27	0.64
7	I share knowledge about new trend in librarianship with my colleagues	12 (2.3%)	28 (5.4%)	290 (56.0%)	188 (36.3%)	3.26	0.66
8	I share experience with colleagues whenever I notice the need for it	11 (2.1%)	29 (5.6%)	295 (56.9%)	183 (35.3%)	3.25	0.66
9	I am willing to share knowledge, if I can obtain a sense of achievement	15 (2.9%)	45 (8.7%)	257 (49.6%)	201 (38.8%)	3.24	0.73
10	I share knowledge outside library matters with my colleagues	7 (1.4%)	34 (6.6%)	305 (58.9%)	172 (33.2%)	3.24	0.63
11	I share experience with my colleagues during brainstorming session	11 (2.1%)	27 (5.2%)	307 (59.3%)	173 (33.4%)	3.24	0.64
12	My colleagues share new library experience with me	6 (1.2%)	21 (4.1%)	338 (65.3%)	153 (29.5%)	3.23	0.57
13	I share experience on library automation with my colleagues	10 (1.9%)	42 (8.1%)	285 (55.0%)	181 (34.9%)	3.23	0.68
14	I share useful ideas with my colleagues through seminars and workshops	9 (1.7%)	35 (6.8%)	305 (58.8%)	169 (32.6%)	3.22	0.64
15	I share new work skills I learnt with my colleagues at conferences	15 (2.9%)	24 (4.6%)	316 (61.0%)	163 (31.5%)	3.21	0.66
16	I share actionable information with	11	43	292	172	3.21	0.68

	my colleagues during staff meeting	(2.1%)	(8.3%)	(56.4%)	(33.2%)		
17	I share insight about readers services with colleagues	12 (2.3%)	35 (6.8%)	306 (59.1%)	165 (31.9%)	3.20	0.66
18	I share experience with my colleagues through orientation and induction of new staff	12 (2.3%)	28 (5.4%)	326 (62.9%)	152 (29.3%)	3.19	0.64
19	I share ideas outside librarianship with my colleagues	10 (1.9%)	36 (6.9%)	317 (61.2%)	155 (29.9%)	3.19	0.64
20	I share experience about serials management with colleagues	9 (1.7%)	53 (10.2%)	292 (56.4%)	164 (31.7%)	3.18	0.68
21	I share new ideas about reference services with colleagues	11 (2.1%)	47 (9.1%)	300 (57.9%)	160 (30.9%)	3.18	0.67
22	I share expertise with my colleagues through community of practice	12 (2.3%)	38 (7.3%)	316 (61.0%)	152 (29.3%)	3.17	0.66
23	I share skills about collection development with colleagues	15 (2.9%)	44 (8.5%)	297 (57.3%)	162 (31.3%)	3.17	0.70
24	I am willing to share expertise, if I will be acknowledged and appreciated	18 (3.5%)	64 (12.4%)	261 (50.4%)	175 (33.8%)	3.14	0.76
25	I am willing to share my work skills, if it will be used for my promotion	26 (5.0%)	78 (15.1%)	241 (46.5%)	173 (33.4%)	3.08	0.82
26	My colleagues share new work skills they learn at conferences with me	21 (4.1%)	62 (12.0%)	308 (59.5%)	127 (24.5%)	3.04	0.73
27	I don't think I will be fulfilled if I don't share my experience with my colleagues	48 (9.3%)	74 (14.3%)	249 (48.1%)	147 (28.4%)	2.96	0.89
28	I find it difficult to share knowledge with my colleagues	80 (15.4%)	167 (32.2%)	172 (33.2%)	99 (19.1%)	2.56	0.97
29	I don't share intuitions because it is difficult to convince colleagues of the value of knowledge sharing	69 (13.3%)	214 (41.3%)	165 (31.9%)	70 (13.5%)	2.46	0.89
30	I think that my authority would be eroded if I share my experience with my colleagues in the profession	127 (24.5%)	192 (37.1%)	119 (23.0%)	80 (15.4%)	2.29	1.00
31	I don't think I have to share my insight with colleagues	150 (29.0%)	212 (40.9%)	93 (18.0%)	63 (12.2%)	2.13	0.97
32	I don't think I have time to share my expertise with my colleagues	153 (29.5%)	211 (40.7%)	95 (18.3%)	59 (11.4%)	2.12	0.89
	Weighted Mean = 3.08						

Table 4.5 shows the rating of the responses on the level of knowledge sharing by librarians in federal universities in Nigeria. Going by the test norm of knowledge sharing scale (See Appendix II), a score of 1-43, indicating low knowledge sharing, 44-86, moderate knowledge sharing and 87-128, high knowledge sharing of the respondents. Since the overall mean score ($\bar{x}$ =98.47. SD =11.54) of the respondents falls within the interval 87-128, one can infer that the knowledge sharing of the respondents is high. The reason is because majority of the respondents claimed that: they think librarians should have access to experience of one another in this library; shared work skills obtained from document on job related matter with their colleagues and shared their experience about cataloguing and classification with colleagues.

The respondents shared new library experience with their colleagues; shared lessons learnt with their colleagues through interpersonal interaction; share insight with their colleagues whenever they are asked to; shared knowledge about new trend in librarianship with their colleagues; shared experience with colleagues whenever they notice the need for it; are willing to share knowledge, if they can obtain a sense of achievement; shared knowledge outside library matters with their colleagues and shared experience with their colleagues during brainstorming session.

The librarians affirmed that as colleagues, they shared new library experience with each other; shared experience on library automation with their colleagues; and share useful ideas with colleagues through seminars and workshops; shared new working skills learnt with their colleagues at conferences; shared actionable information with their colleagues during staff meetings, among others. The implication of the result is that adequate knowledge sharing exists among librarians in federal universities in Nigeria. Considering the dimensions at which librarians shared knowledge, it is not suprising that the type of knowledge created by librarians is enourmous. When there is adequate knowledge sharing among emplyees in any organisation, especially library, it enhances the possibility of creating more knowledge, because knowledge sharing is an enabler of knowledge creation.

Research question four: What are the channels of knowledge sharing by the librarians in federal universities in Nigeria?

Channels of knowledge sharing by librarians is presented in Table 4.6.

Table. 4.6 Channels of knowledge sharing by the librarians in federal universities in Nigeria

S/N	I share knowledge through:	SD	D	A	SA	$\bar{x}$	S.D
1	Face-to-face interaction	9 (1.7%)	4 (0.8%)	201 (38.8%)	304 (58.7%)	3.54	0.61
2	The use of mobile phone	10 (1.9%)	17 (3.3%)	254 (49.0%)	237 (45.8%)	3.39	0.65
3	E-mail	17 (3.3%)	31 (6.0%)	267 (51.5%)	203 (39.2%)	3.27	0.72
4	Formal/informal meetings	12 (2.3%)	26 (5.0%)	311 (60.0%)	169 (32.6%)	3.23	0.65
5	Seminars, workshops and symposia	20 (3.9%)	27 (5.2%)	297 (57.3%)	174 (33.6%)	3.21	0.71
6	Mentoring	15 (2.9%)	55 (10.6%)	299 (57.7%)	149 (28.8%)	3.12	0.70
7	Peer assistance	17 (3.3%)	50 (9.7%)	312 (60.2%)	139 (26.8%)	3.11	0.70
8	WhatsApp	25 (4.8%)	81 (15.6%)	244 (47.1%)	168 (32.4%)	3.07	0.82
9	Google scholar	24 (4.6%)	84 (16.2%)	256 (49.4%)	154 (29.7%)	3.04	0.80
10	Notice board	27 (5.2%)	77 (14.9%)	273 (52.7%)	141 (27.2%)	3.02	0.79
11	Library news bulleting	29 (5.6%)	79 (15.3%)	269 (51.9%)	141 (27.2%)	3.01	0.81
12	Nigerian Library Association online forum	22 (4.2%)	87 (16.8%)	275 (53.1%)	134 (25.9%)	3.01	0.77
13	Yahoo messenger	29 (5.6%)	82 (15.8%)	261 (50.4%)	146 (28.2%)	3.01	0.82
14	Networking	26 (5.0%)	83 (16.0%)	282 (54.4%)	127 (24.5%)	2.98	0.78
15	The library portal	34 (6.6%)	97 (18.7%)	239 (46.1%)	148 (28.6%)	2.97	0.86
16	Twitter	36 (6.9%)	88 (17.0%)	258 (49.8%)	136 (26.3%)	2.95	0.84
17	Knowledge repositories	36 (6.9%)	85 (16.4%)	282 (54.4%)	115 (22.2%)	2.92	0.81
18	Facebook	34 (6.6%)	115 (22.2%)	230 (44.4%)	139 (26.8%)	2.92	0.86
19	LinkedIn	33	114	236	135	2.91	0.85

		(6.4%)	(22.0%)	(45.6%)	(26.1%)		
20	Memoranda	38 (7.3%)	97 (18.7%)	264 (51.0%)	119 (23.0%)	2.90	0.84
21	Coaching	36 (6.9%)	88 (17.0%)	289 (55.8%)	105 (20.3%)	2.89	0.80
22	Internet telephone	31 (6.0%)	115 (22.2%)	252 (48.6%)	120 (23.2%)	2.89	0.83
23	Knowledge fair	38 (7.3%)	102 (19.7%)	271 (52.3%)	107 (20.7%)	2.86	0.82
24	Research gate	33 (6.4%)	138 (26.6%)	216 (41.7%)	131 (25.3%)	2.86	0.87
25	Blog	38 (7.3%)	134 (25.9%)	218 (42.1%)	128 (24.7%)	2.84	0.88
26	Story telling	38 (7.3%)	123 (23.7%)	256 (49.4%)	101 (19.5%)	2.81	0.83
27	You Tube	38 (7.3%)	143 (27.6%)	228 (44.0%)	109 (21.0%)	2.79	0.86
28	After action review	41 (7.9%)	121 (23.4%)	265 (51.2%)	91 (17.6%)	2.78	0.82
29	World café	45 (8.7%)	134 (25.9%)	240 (46.3%)	99 (19.1%)	2.76	0.86
30	Video conferencing	43 (8.3%)	141 (27.2%)	233 (45.0%)	101 (19.5%)	2.76	0.86
31	RSS feed	44 (8.5%)	159 (30.7%)	203 (39.2%)	112 (21.6%)	2.74	0.89
32	Teleconferencing	48 (9.3%)	145 (28.0%)	230 (44.4%)	95 (18.3%)	2.72	0.87
33	Instagram	45 (8.7%)	166 (32.0%)	194 (37.5%)	113 (21.8%)	2.72	0.90
34	Skype	39 (7.5%)	169 (32.6%)	208 (40.2%)	102 (19.7%)	2.72	0.86
35	Pinterest	43 (8.3%)	170 (32.8%)	215 (41.5%)	90 (17.4%)	2.68	0.86
36	2go	55 (10.6%)	179 (34.6%)	191 (36.9%)	93 (18.0%)	2.62	0.90
37	Twoo	57 (11.0%)	212 (40.9%)	160 (30.9%)	89 (17.2%)	2.54	0.90
	Weighted Mean = 2.93						

Rating of the responses on the channels of knowledge sharing by librarians in federal universities in Nigeria reveals that: Face-to-face interaction ($\bar{x}$ =3.54, SD = .61) was the major channel of knowledge sharing by librarians and was followed by the use of mobile phone ($\bar{x}$ =3.39, SD = .65), E-mail ($\bar{x}$ =3.27, SD = .72), Formal/informal meetings ($\bar{x}$ =3.23, SD = .65), Seminars, workshops and symposia ($\bar{x}$ =3.21, SD = .71), Mentoring ($\bar{x}$ =3.12, SD = .70), Peer

assistance ($\bar{x}$ =3.11, SD = .70), WhatsApp ($\bar{x}$ =3.07, SD = .82), Google scholar ($\bar{x}$ =3.04, SD = .80), Notice board ($\bar{x}$ =3.02, SD = .79), Library news bulleting ($\bar{x}$ =3.01, SD = .81), Nigerian Library Association online forum ($\bar{x}$ =3.01, SD = .77), Yahoo messenger ($\bar{x}$ =3.01, SD = .82), Networking ($\bar{x}$ =2.98, SD = .78), The library portal ($\bar{x}$ =2.97, SD = .86), Twitter ($\bar{x}$ =2.95, SD = .84) and Knowledge repositories ($\bar{x}$ =2.92, SD = .81).

Other channel of knowledge sharing used by librarians are Facebook ($\bar{x}$ =2.92, SD = .86), LinkedIn ($\bar{x}$ =2.91, SD = .85), Memoranda ($\bar{x}$ =2.90, 84), Coaching ($\bar{x}$ =2.89, SD = .80), Internet telephone ($\bar{x}$ =2.89, SD = .83), Knowledge fair ($\bar{x}$ =2.86, SD = .82), Research gate ($\bar{x}$ =2.86, SD = .87), Blog ($\bar{x}$ =2.84, SD = .88), Storytelling ($\bar{x}$ =2.81, SD = .83), You Tube ($\bar{x}$ =2.79, SD = .86), After action review ($\bar{x}$ =2.78, SD = .82), World café ($\bar{x}$ =2.76, SD = .86), Video conferencing ($\bar{x}$ =2.76, SD = .86), RSS feed ($\bar{x}$ =2.74, SD = .89), Teleconferencing ($\bar{x}$ =2.72, 87), Instagram ($\bar{x}$ =2.72, SD = .90), Skype ($\bar{x}$ =2.72, SD = .86), Pinterest ($\bar{x}$ =2.68, SD = .86), 2go ($\bar{x}$ =2.62, 90) and Twoo ($\bar{x}$ =2.54, SD = .90) respectively.

The channel by which the librarians shared knowledge is muli-dimmentional. Through categorisation, the librarians shared knowledge through inter-personal relationship; they employed the use of Information Communication Technologies (ICTs), and social media platform to disseminate knowledge among one another.

Research question five: What is the level of knowledge use by the librarians in federal universities in Nigeria?

The level of knowledge use by librarians is presented in Table 4.7.

Table 4.7 Level of knowledge use by the librarians in federal universities in Nigeria

S/N	Knowledge use behaviour of librarians	SD	D	A	SA	$\bar{x}$	S.D
1	I applied new ideas gained from my colleagues to enhance my work performance.	5 (1.0%)	9 (1.7%)	277 (53.5%)	227 (43.8%)	3.40	0.58
2	Actionable information I obtained from workshop/seminars and symposia attendance has really helped me to publish more scholarly papers.	11 (2.1%)	28 (5.4%)	243 (46.9%)	236 (45.6%)	3.36	0.68
3	Knowledge got from the library document is used to generate new research skills	9 (1.7%)	14 (2.7%)	279 (53.9%)	216 (41.7%)	3.36	0.62
4	Knowledge derived from my colleagues has improved my information searching skills	7 (1.4%)	15 (2.9%)	283 (54.6%)	213 (41.1%)	3.36	0.61
5	Cataloguing and classification of information materials has become much easier for me as a result of knowledge acquired through my colleagues	15 (2.9%)	31 (6.0%)	258 (49.8%)	214 (41.3%)	3.30	0.71
6	Effective use of electronic information resources has helped me to present better seminars/workshops papers	11 (2.1%)	31 (6.0%)	275 (53.1%)	201 (38.8%)	3.29	0.67
7	Actionable information gained from my colleagues has helped me to discharge my duties more efficiently.	11 (2.1%)	26 (5.0%)	293 (56.6%)	188 (36.3%)	3.27	0.65
8	I use experience acquired from colleagues to provide better reference services	15 (2.9%)	33 (6.4%)	277 (53.5%)	193 (37.3%)	3.25	0.70
9	I use the experience of others in finding solution to problems I encounter on the job.	15 (2.9%)	30 (5.8%)	283 (54.6%)	190 (36.7%)	3.25	0.69
10	I make regular use of documented knowledge in solving work related problems than undocumented knowledge.	9 (1.7%)	33 (6.4%)	301 (58.1%)	175 (33.8%)	3.24	0.64
11	I applied insight gained through discussion group, workshops and conferences to improve my understanding of statistical data analysis	10 (1.9%)	23 (4.4%)	323 (62.4%)	162 (31.3%)	3.23	0.62
12	I have increased my research output in journals as a result of applying experience I gained from my colleagues.	7 (1.4%)	38 (7.3%)	307 (59.3%)	166 (32.0%)	3.22	0.63
13	My expertise on collection development has improved tremendously as a result of knowledge gained from colleagues	19 (3.7%)	50 (9.7%)	273 (52.7%)	176 (34.0%)	3.17	0.75
14	Actionable information gained from community of practice in my workplace is used for writing research proposals	15 (2.9%)	49 (9.5%)	308 (59.5%)	146 (28.2%)	3.13	0.69
15	I use insight gained from colleagues to	20	56	286	156	3.12	0.74

	provide better service on serial management	(3.9%)	(10.8%)	(55.2%)	(30.1%)		
	Weighted Mean = 3.26						

Table 4.7 presents the level of knowledge use by librarians in federal universities in Nigeria.Going by the test norm of knowledge use scale (See Appendix II), a score of 1-20, indicating low knowledge use, 21-40, moderate knowledge use and 41-60, high knowledge use by the respondents. Since the overall mean score ($\bar{x}$ =51.57. SD =4.32) of the respondents falls within the interval 41-60, one can conclude that the knowledge use of the respondents is high. The reason is because majority of the respondents claimed that: they applied new ideas gained from their colleagues to enhance their work performance; actionable information obtained from workshops, seminars and symposia attendance has really help them publish more scholarly papers.

Knowledge got from the library documents is used by the librarians to generate new research skills; knowledge derived from their colleagues has improved their information searching skills and cataloguing and classification of information materials has become much easier for them as a result of knowledge acquired through their colleagues. Effective use of electronic information resources has helped them to present better seminars/workshops papers. Actionable information gained from their colleagues has helped them to discharge their duties more efficiently; and they use experience acquired from their colleagues to provide better reference services, among others. By inference, one can conclude that librarians use both personal knowledge and knowledge obtained from colleagues to enhace work performance. This isa good omen for the library clientele; the reason is because library userswill enjoy quantitative and qualitative library services from the librarians.

Research question six: What is the level of creativity by the librarians in federal universities in Nigeria?

The level of creativity by librarians is presented in Table 4.8.

Table 4.8 Level of creativity ofthe librarians in federal universities in Nigeria

S/N	Creativity behaviours of librarians	SD	D	A	SA	$\bar{x}$	S.D
1	I am interested in my work and I find it rewarding/fulfilling	7 (1.4%)	18 (3.5%)	277 (53.5%)	216 (41.7%)	3.36	0.62
2	I am confident that I can perform creativity on different tasks at work	7 (1.4%)	12 (2.3%)	293 (56.6%)	206 (39.8%)	3.35	0.60
3	Creativity at work is important to me	8 (1.5%)	24 (4.6%)	280 (54.1%)	206 (39.8%)	3.32	0.64
4	I demonstrate originality at my work	8 (1.5%)	19 (3.7%)	294 (56.8%)	197 (38.0%)	3.31	0.62
5	My previous experience makes me more creative in the workplace	8 (1.5%)	17 (3.3%)	302 (58.3%)	191 (36.9%)	3.31	0.61
6	I am confident and committed in working with my organization	10 (1.9%)	26 (5.0%)	278 (53.7%)	204 (39.4%)	3.31	0.66
7	I would like to work with others to maximise innovations	8 (1.5%)	23 (4.4%)	298 (57.5%)	189 (36.5%)	3.29	0.62
8	I am not afraid when facing challenges at work	16 (3.1%)	21 (4.1%)	284 (54.8%)	197 (38.0%)	3.28	0.68
9	I am able to achieve most of my personal goals at work	12 (2.3%)	34 (6.6%)	275 (53.1%)	197 (38.0%)	3.27	0.68
10	My personal contacts enhance my level of creativity in the workplace	11 (2.1%)	30 (5.8%)	28 (55.4%)	190 (36.7%)	3.27	0.66
11	I believe that my personality traits make me more creative in the workplace	10 (1.9%)	34 (6.6%)	306 (59.1%)	168 (32.4%)	3.22	0.65
12	I have some ideas that something would work better in the discharge of my duties	10 (1.9%)	23 (4.4%)	328 (63.3%)	157 (30.3%)	3.22	0.61
13	I have the ability to see how to take advantage of a certain situation	7 (1.4%)	19 (3.7%)	349 (67.4%)	143 (27.6%)	3.21	0.57
14	I am versatile, I can easily come up with innovative solution no matter the work field	11 (2.1%)	33 (6.4%)	311 (60.0%)	163 (31.5%)	3.21	0.65
15	The opinion of other work colleagues has a positive effect on my creative ability	5 (1.0%)	30 (5.8%)	332 (64.1%)	151 (29.2%)	3.21	0.59
16	My colleagues consider me as a creative employee	12 (2.3%)	30 (5.8%)	316 (61.4%)	158 (30.5%)	3.20	0.65
17	I look for things in my environment to inspire me to find new	8 (1.5%)	41 (7.9%)	330 (63.7%)	139 (26.8%)	3.16	0.62

	interpretations of problems						
18	I prefer to approach problems in logical way	15 (2.9%)	42 (8.1%)	317 (61.2%)	144 (27.8%)	3.14	0.68
19	I am confident that I can develop creative ideas to solve problems and implement solutions	24 (4.6%)	33 (6.4%)	316 (61.0%)	145 (28.0%)	3.12	0.72
20	I always observe problems, complaints, and bottlenecks as opportunities rather than as issues	17 (3.3%)	48 (9.3%)	318 (61.4%)	135 (26.1%)	3.10	0.69
21	I like taking risks at my work	19 (3.7%)	72 (13.9%)	281 (54.2%)	146 (28.2%)	3.07	0.75
22	Routine does not impede on my creativity	19 (3.7%)	51 (9.8%)	330 (63.7%)	118 (22.8%)	3.06	0.69
23	I am not easily influenced by others	22 (4.2%)	58 (11.2%)	308 (59.5%)	130 (25.1%)	3.05	0.73
24	I rarely ignore good ideas because I don't have the resources to implement them	43 (8.3%)	85 (16.4%)	267 (51.5%)	123 (23.7%)	2.91	0.85
25	I am satisfied with my salary/remuneration package at work	44 (8.5%)	107 (20.7%)	232 (44.8%)	135 (26.1%)	2.88	0.89
26	Time pressure inhibits my individual creativity at work	32 (6.2%)	99 (19.1%)	293 (56.6%)	94 (18.1%)	2.87	0.78
27	I avoid following procedures strictly by the rules	47 (9.1%)	111 (21.4%)	275 (53.1%)	85 (16.4%)	2.77	0.83
	Weighted Mean = 3.17						

Table 4.8 reveals the level of creativity by librarians in federal universities in Nigeria. Going by the test norm of creativity scale (See Appendix II), a score of 1-36, indicating low creativity, 37-72 moderate creativity and 73-108 high creativity of the respondents. Since the overall mean score ($\bar{x}$ =85.45 SD = 10.32) of the respondents falls within the interval 73-108, one can infer that the creativity of the respondents is high. The reason is because majority of the respondents claimed that: they are interested in their work and find it rewarding/fulfilling; they are confident that they can perform creativity on different tasks at work; creativity is important to them and demonstrate originality in their work.

Others factors are that their previous experience makes them more creative in the workplace; they are confident and committed in working with their organisations; will like to work with others to maximise innovations; are not afraid when facing challenges at work; are able to achieve most of their personal goals at work; their personal contacts enhance their level of creativity in workplace; believes that their personality trait make them more creative in

workplace; have some ideas that something would work better in the discharge of their duties and have ability to see how to take advantage of a certain situation among others.

Furthermore, majority of the respondents believed that their personality traits make me more creative in the workplace, have the ability to see how to take advantage of a certain situation and can easily come up with innovative solution no matter the work field. The creativity of the respondents was also revealed in the way they looked for things in their environment to inspire them find new interpretations of problems, prefer to approach problems in logical way, develop creative ideas to solve problems and implement solutions and that they always observe problems, complaints, and bottlenecks as opportunities rather than as issues.

Since creativity is an idea generated to perform an assigned function. It is not ambiguous to conclude that the personality traits and personal contacts of the respondents greatly and positively affected their creativity. Creative people are tenatious, the challenges that the workplace poses will further strengthened the creative mindto achieve more, rather than become become a breaking point for creative personnel.

Research question seven: What is the level of innovation by the librarians in federal universities in Nigeria?

The level of innovation of librarians is presented in Table 4.9

Table 4.9 Level of innovation by the librarians in federal universities in Nigeria

S/N	Innovative behaviour of librarians	SD	D	A	SA	$\bar{x}$	S.D
1	I enjoy trying new ideas	19 (3.7%)	26 (5.0%)	302 (58.3%)	171 (33.0%)	3.21	0.70
2	I seek out new ways to do things	13 (2.5%)	35 (6.8%)	309 (59.7%)	16 (31.1%)	3.19	0.67
3	The creation of new product/services in my library is based on the combined effort of librarians	13 (2.5%)	36 (6.9%)	310 (59.8%)	159 (30.7%)	3.19	0.67
4	Library management promotes implementing new ideas	25 (4.8%)	36 (6.9%)	301 (58.1%)	156 (30.1%)	3.14	0.74
5	I frequently improvise methods for solving a problem when an answer is not apparent	20 (3.9%)	39 (7.5%)	323 (62.4%)	136 (26.3%)	3.11	0.69
6	Implementing new proposals are welcome in my library	24 (4.6%)	53 (10.2%)	302 (58.3%)	139 (26.8%)	3.07	0.74
7	I always inject new services to my work schedule each day	15 (2.9%)	69 (13.3%)	315 (60.8%)	119 (23.0%)	3.04	0.69
8	I am an inventive kind of person	32 (6.2%)	58 (11.2%)	285 (55.0%)	143 (27.6%)	3.04	0.80
9	I often find myself skeptical of new ideas	32 (6.2%)	101 (19.5%)	201 (38.8%)	184 (35.5%)	3.04	0.89
10	I enjoy taking part in the leadership responsibilities of the group I belong to	31 (6.0%)	84 (16.2%)	263 (50.8%)	140 (27.0%)	2.99	0.82
11	I consider myself to be creative and original in my thinking and behaviour	28 (5.4%)	79 (15.3%)	285 (55.0%)	126 (24.3%)	2.98	0.78
12	I am receptive to new ideas	29 (5.6%)	77 (14.9%)	289 (55.8%)	123 (23.7%)	2.98	0.78
13	I am challenged by unanswered questions	25 (4.8%)	96 (18.5%)	262 (50.6%)	135 (26.1%)	2.98	0.80
14	I feel that I am an influential member of my peer group	22 (4.2%)	87 (16.8%)	301 (58.1%)	108 (20.8%)	2.96	0.74
15	I find it stimulating to be original in my thinking and behaviour	36 (6.9%)	100 (19.3%)	265 (51.2%)	117 (22.6%)	2.89	0.83
16	I am generally cautious about accepting new ideas	27 (5.2%)	108 (20.8%)	290 (56.0%)	93 (18.0%)	2.87	0.76

17	I spent more time on daily basis thinking about how new services can be implemented in my library	32 (6.2%)	97 (18.7%)	297 (57.3%)	92 (17.8%)	2.87	0.77
18	I almost made new product/services myself although I had to use some kinds of assistance or help	26 (5.0%)	122 (23.6%)	273 (52.7%)	97 (18.7%)	2.85	0.78
29	I rarely trust new ideas until I can see whether the vast majority of people around me accept them	41 (7.9%)	139 (26.8%)	243 (46.9%)	95 (18.3%)	2.76	0.84
20	I am challenged by ambiguities and unsolved problems	34 (6.6%)	142 (27.4%)	254 (49.0%)	88 (17.0%)	2.76	0.81
21	I must see other people using new skills before I will consider them	46 (8.9%)	143 (27.6%)	225 (43.4%)	104 (20.1%)	2.75	0.88
22	I spend all my time on implementing new services	36 (6.9%)	173 (33.4%)	205 (39.6%)	104 (20.1%)	2.73	0.86
23	I am suspicious of new inventions and new ways of thinking	32 (6.2%)	165 (31.9%)	234 (45.2%)	87 (16.8%)	2.73	0.81
24	I am reluctant about adopting new ways of doing things until I see them working for people around me	41 (7.9%)	159 (30.7%)	220 (42.5%)	98 (18.9%)	2.72	0.86
25	I tend to feel that the old way of living and doing things is the best way	52 (10.0%)	139 (26.8%)	230 (44.4%)	97 (18.7%)	2.72	0.88
26	I am aware that I am usually one of the last people in my group to accept something new	55 (10.6%)	153 (29.5%)	220 (42.5%)	90 (17.4%)	2.67	0.89
27	Coordinating of tasks and people is taking too much of my time	49 (9.5%)	210 (40.5%)	181 (34.9%)	78 (15.1%)	2.56	0.86
28	Implementing new skills is perceived as too risky for me in the library and is resisted	72 (13.9%)	233 (45.0%)	152 (29.3%)	61 (11.8%)	2.39	0.87
29	Other priorities prevent me from focusing my attention on implementing new ideas	74 (14.3%)	240 (46.3%)	142 (7.4%)	62 (12.0%)	2.37	0.87
	Weighted Mean = 2.89						

Table 4.9 presents the level of innovation by the librarians in federal universities in Nigeria. Going by the test norm of innovation scale (See Appendix II), a score of 1-40, indicating low innovation, 41-80, moderate innovation and 81-120, high innovation of the respondents. Since the overall mean score ($\bar{x}$ = 86.60. SD =12.53) of the respondents falls within the interval 81-120, one can deduce that the innovation of the respondents is high.

The reason is because majority of the respondents claimed that: they enjoy trying new ideas; seek out new ways to do things and that creation of new product/services in their library is based on the combined effort of librarians. Similarly, the library management also contributes to the employees' innovation through promotion of implementing new ideas. The respondents frequently improvise methods for solving a problem when an answer is not apparent; implementing new proposals and always inject new services to work schedule each day. They are inventive and that they considered themselves to be creative and original in their thinking and behaviour.

Furthermore, the respondents claimed that they enjoyed taking part in the leadership responsibilities of the group they belong to, are receptive to new idea and are constantly challenged by unanswered questions, all of which prompted their innovative prowess. It should be noted that the respondents find it stimulating to be original in their thinking and behaviour. They spent more time on daily basis thinking about how new services can be implemented in their library, made new product/services, challenged by ambiguities and unsolved problems and they spend much of their time on implementing new services in their library.

Innovative techniques used in marketing library products and services in federal universities in Nigeria

The innovative techniques of librarians is presented in Table 4.10

Table 4. 10 Innovative techniques used in marketing library products and services in federal universities in Nigeria

S/N	Techniques used in marketing	SD	D	A	SA	$\bar{x}$	S.D
1	Librarians should be properly dressed	7 (1.4%)	23 (4.4%)	239 (46.1%)	249 (48.1%)	3.41	0.64
2	Organising user education	10 (1.9%)	17 (3.3%)	243 (46.9%)	248 (47.9%)	3.41	0.65
3	Provision of electronic access to information	8 (1.5%)	18 (3.5%)	253 (48.8%)	239 (46.1%)	3.40	0.63
4	Use of leaflet and posters	8 (1.5%)	35 (6.8%)	262 (50.6%)	213 (41.1%)	3.40	0.62
5	Having representative in institutional functions	10 (1.9%)	20 (3.9%)	248 (47.9%)	240 (46.3%)	3.39	0.66
6	Advertising in print and electronic media	8 (1.5%)	17 (3.3%)	259 (50.0%)	234 (45.2%)	3.39	0.63
7	Increase interpersonal relationship between staff and users	14 (2.7%)	33 (6.4%)	215 (41.5%)	256 (49.4%)	3.38	0.72
8	One on one discussion with the users	7 (1.4%)	23 (4.4%)	253 (48.8%)	235 (45.4%)	3.38	0.64
9	Provision of suggestion boxes	9 (1.7%)	15 (2.9%)	263 (50.8%)	231 (44.6%)	3.38	0.63
10	Organising library week	7 (1.4%)	23 (4.4%)	263 (50.8%)	225 (43.4%)	3.36	0.63
11	Creating a library web page	7 (1.4%)	18 (3.5%)	256 (49.4%)	237 (45.8%)	3.36	0.63
12	Exhibitions and display of new arrivals	13 (2.5%)	39 (7.5%)	232 (44.8%)	234 (45.2%)	3.33	0.72
13	Requesting for contribution from users while making acquisitions	16 (3.1%)	34 (6.6%)	243 (46.9%)	225 (43.4%)	3.31	0.73
14	Sending personal letters to users through e-mail and text messages	14 (2.7%)	29 (5.6%)	274 (52.9%)	201 (38.8%)	3.28	0.69
15	Sending out brochure or flyers	10 (1.9%)	32 (6.2%)	286 (55.2%)	190 (36.7%)	3.27	0.66
	Weighted Mean = 3.36						

Rating of the responses on the techniques used in marketing library products and services in federal universities in Nigeria are revealed: Librarians should be properly dressed ($\bar{x}$ =3.41, SD = .64) ranked highest by the mean score rating and was followed by organising user

education ($\bar{x}$ =3.41, SD = .65), provision of electronic access to information ($\bar{x}$ =3.40, SD = .63), use of leaflet and posters ($\bar{x}$ =3.40, SD = .62), having representative in institutional functions ($\bar{x}$ =3.39, SD = .66), advertising in print and electronic media ($\bar{x}$ =3.39, SD = .63) and increase interpersonal relationship between staff and users ($\bar{x}$ = 3.38, SD = .72).

Others innovative techniques employed by librarians are one on one discussion with the users ($\bar{x}$ =3.38, SD = .64), provision of suggestion boxes ($\bar{x}$ =3.38, SD = .63), organising library week ($\bar{x}$ =3.36, SD = .63), creating a library web page ($\bar{x}$ =3.36, SD = .63), exhibitions and display of new arrivals ($\bar{x}$ =3.33, SD = .72), requesting for contribution from users while making acquisitions ($\bar{x}$ =3.31, SD = .73), sending personal letters to users through e-mail and text messages ($\bar{x}$ =3.28, SD = .69) and sending out brochure or flyers ($\bar{x}$ =3.27, SD = .66) respectively.

It is evident that the most prominent innovative techniques used by librarians in marketing library products and services is the way librarians presents themselves to the library users and offer of user education to create awareness and provides information literacy skills to user. The curriculum of user education has always been comprehensive and it is dimmentional. It is to be noted however, that, every other innovative techniques is associated in one way or the other with information literacy skills offered to users during library education programme. The library education could come in the form of making library tour where every aspects of the library will be made opened to the library users. Other method could be in form of lecture or library visit.

Research question eight: What is the relative contribution of knowledge creation, sharing and use to the prediction of creativity of librarians in federal universities in Nigeria?

The relative contribution of knowledge creation, sharing and use to the prediction of creativity of librarians is presented in Table 4.11.

Table 4.11 Relative contribution of knowledge creation, sharing and use to the prediction of creativity of librarians

Model	Unstandardised Coefficient		Standardised. Coefficient	T	Sig.P
	B	Std. Error	Beta Contribution		
(Constant)	22.184	2.974		7.460	.000
Knowledge Creation	.311	.067	.235	2.154	.002
Knowledge Sharing	.293	.038	.328	7.761	.000
Knowledge Use	.655	.066	.422	9.952	.000

Table 4.11 reveals the result of the relative contribution of each of the independent variables (knowledge creation, sharing and use) to the dependent variable (creativity of librarians). The regression model was used to determine the relative contribution of the independent variables (knowledge creation, sharing and use) to the dependent variable (creativity of librarians). This implies that knowledge creation had relative contribution of 23.5%, knowledge sharing 32.8% and knowledge use 42.2% to the prediction of creativity of the respondents. In addition, knowledge creation (Beta = 0.311, t= 2.154, p <.05), knowledge sharing (Beta = 0.293, t= 7.761, p <.05) and knowledge use (Beta = .655, t= 9.952, p <.05) individually has significantly predicted creativity of the respondents. Knowledge creation has a relative contribution (Beta = 0.311), knowledge sharing (Beta = 0.293) and knowledge use (Beta = 0.655) to the prediction of the respondents. One can therefore submit that knowledge use is the most potent factor predicting creativity of the respondents.

Research question nine: What is the relative contribution of knowledge creation, sharing and use to the prediction of innovation of librarians in federal universities in Nigeria?

The relative contribution of knowledge creation, sharing and use to the prediction of innovation of librarians is presented in Table 4.12.

Table 4.12 Relative contribution of knowledge creation, sharing and use to the prediction of innovation of librarians

Model	Unstandardised Coefficient		Standardised. Coefficient	T	Sig. P
	B	Std. Error	Beta Contribution		
(Constant)	25.712	4.265		6.029	.000
Knowledge Creation	.252	.095	.120	2.639	.009
Knowledge Sharing	.342	.054	.315	6.317	.000
Knowledge Use	.356	.094	.189	3.777	.000

Table 4.12 reveals the result of the relative contribution of each of the independent variables (knowledge creation, sharing and use) to the dependent variable (innovation of librarians). The regression model was used to determine the relative contribution of the independent variables (knowledge creation, sharing and use) to the dependent variable (innovation of librarians). This implies that knowledge creation had relative contribution of 12.0%, knowledge sharing 31.5% and knowledge use 18.9% to the prediction of innovation of the respondents. In addition, knowledge creation (Beta = 0.252, t= 2.639, p <.05), knowledge sharing (Beta = 0.342, t= 6.317, p <.05) and knowledge use (Beta = 0.356, t= 3.777, p <.05) individually has significantly predicted innovation of the respondents. Knowledge creation has a relative contribution (Beta = 0.252), knowledge sharing (Beta = 0.342) and knowledge use (Beta = 0.356) to the prediction of the respondents. One can therefore submit that knowledge sharing is the most potent factor predicting innovation of the respondents.

Research question ten: What is thecontribution of knowledge creation, sharing, use, creativity and innovation of librarians based on their work section?

Descriptive statistics of the Knowledge creation, knowledge sharing, knowledge use, creativity and innovation of the respondents by their work section

Table 4.13 The descriptive statistics showing the knowledge creation, knowledge sharing, knowledge use, creativity and innovation of librarians by their work section

s/n	Work section	Knowledge creation		Knowledge sharing		Knowledge use		Creativity		Innovation	
		$\bar{x}$	S.D	$\bar{x}$	S.D	$\bar{x}$	S.D	$\bar{x}$	S.D	$\bar{x}$	S.D
1	Management unit	38.16	7.59	99.69	10.16	49.24	6.67	83.95	10.43	85.54	15.03
2	Cataloguing/classification unit	38.57	6.55	99.30	12.82	48.91	7.19	85.76	10.41	85.67	12.91
3	Acquisition unit	38.57	5.66	99.00	11.70	49.49	6.11	86.60	10.06	87.13	12.11
4	Circulation unit	38.82	5.77	98.32	13.15	47.95	6.45	84.93	10.80	87.11	12.13
5	Reference unit	38.73	5.74	99.37	10.55	49.29	6.25	87.16	10.74	87.45	12.56
6	Virtual unit	39.69	2.75	98.00	11.05	44.77	10.15	79.69	17.09	86.23	18.28
7	Reprographic unit	40.39	5.48	99.39	8.97	50.97	6.02	86.61	9.10	89.00	10.98
8	IT & Computer section unit	38.93	3.68	94.73	9.74	47.90	6.15	84.15	7.54	85.63	10.03
9	Serial unit	37.16	6.55	95.19	10.36	49.37	5.33	84.35	8.03	84.60	10.94
10	Audio-visual unit	38.86	5.07	101.07	12.49	50.36	9.10	89.00	12.38	91.93	12.56
Total		**38.64**	**5.97**	**98.47**	**11.54**	**48.93**	**6.65**	**85.45**	**10.32**	**86.59**	**12.53**

Table 4.13 shows the descriptive statistics of knowledge creation, knowledge sharing, knowledge use, creativity and innovation of the respondents by their work section. It was discovered that librarians working in the reprographic unit had the highest ranking on the basis of knowledge creation, $\bar{x}$= 40.39, followed by librarians working in virtual unit $\bar{x}$= 39.69, IT and Computer unit $\bar{x}$= 38.93, Audio-visual Unit $\bar{x}$= 38.86. The section which has low knowledge creation as revealed by the study are Management unit, $\bar{x}$= 38.16; Serial unit $\bar{x}$ =38.16, Acquisition $\bar{x}$= 38.57 and Cataloguing and classification Unit $\bar{x}$= 38.57 respectively. Knowledge sharing of the respondents on the basis of work section indicated that Audio-Visual unit had the highest ranking $\bar{x}$= 101.07. This was followed by librarians in the Management Unit $\bar{x}$= 99.69, Reprographic unit $\bar{x}$= 99.39 and Reference unit $\bar{x}$= 99.37. The section which has low level of knowledge sharing are: IT and Computer unit $\bar{x}$= 94.73, Serial unit $\bar{x}$= 95.19 and Virtual unit respectively.

On the basis of work section, Reprographic section, $\bar{x}$ = 50.97 was ranked highest based on knowledge use by the librarians. This was followed by Audio-Visual unit $\bar{x}$ = 50.36, Acquisition Unit had $\bar{x}$ = 49.49, Serial Unit $\bar{x}$ = 49.37 and Management unit $\bar{x}$ = 49.24. The results also indicated that librarians in Virtual library $\bar{x}$ = 44.77 had low level of knowledge use. Other sections with low knowledge use are librarians who work in the Circulation unit $\bar{x}$ = 47.95 and librarians who works at the Cataloguing and classification units. The finding on the level of creativity of the librarians based on work section showed that Audio-visual unit had the highest ranking $\bar{x}$ = 89.00. This was followed by Reference unit $\bar{x}$ = 87.16, Reprographic unit $\bar{x}$ = 86.61 and Acquisition unit $\bar{x}$ = 86.60 respectively.

The finding on the innovation of librarians on the basis of the section in which they were working reveals that librarians working at the Audio-Visual unit had the highest mean value $\bar{x}$ = 91.93; followed by Reprographic unit $\bar{x}$ = 87.13. Other units whose innovative level was low are serial unit $\bar{x}$ = 84.60; Management unit $\bar{x}$ = 85.54 and IT and Computer Section 85.63 respectively.

The implication of the above findings is that units that are not fully recognised are creating more knowledge than those recognised to have been the core of librarianship. One major reason why the Management unit may not have been able to create knowledge like the librarians in other section may be as a result of regular meeting they attend. It means other priorities may be preventing them from creating knowledge as expected. The application of information Technology tools or level of expertise in the use of ICTs tools may have facilitated why librarians working in virtual unit and IT and computer Section created more knowledge than their counterparts who worked in other sections.

Inference that could also be made from the finding of this study is that the use of technology may have influenced why librarians in Audio-Visual unit had the highest mean score on knowledge sharing. Going by the result of the channel through which librarians shared knowledge among one another, the prevalence of the use of web 2.0 and other information technology tools are evident. Similarly, Librarians in the management unit are expected to pass instructions to other librarians in the library. They occupy positions such as university librarians, Deputy University Librarians, Supervisors and Head of sectional unit.

One critical point to note why the level of knowledge use by librarians in circulation and Cataloguing and Classification unit appears to be low may be hinged on the fact that they are

always busy in their job schedule, which may have negative effect on the way they use knowledge among each other.

4.5 Test of Hypotheses

Ho1: There is no significant relationship between knowledge creation and creativity of librarians in federal universities in Nigeria.

Relationship between knowledge creation and creativity of librarians is presented in Table 4.14.

Table 4.14 Relationship between knowledge creation and creativity of librarians

Variable	Mean	Std. Dev.	N	r	Sig P	Remark
Creativity of Librarians	85.4537	10.3156	518	.423*	.000	Sig.
Knowledge Creation	38.6429	5.9733				

* Sig at 0.5 level

Table 4.14 shows that there was a positive significant relationship between knowledge creation and creativity of librarians in federal universities in Nigeria ($r = .423^*$, $N= 518$, $p <.05$). Hence, knowledge creation is positively associated with the creativity of the librarians in federal universities in Nigeria. The null hypothesis is rejected.

Ho2: There is no significant relationship between knowledge creation and innovation of librarians in federal universities in Nigeria

Relationship between knowledge creation and innovation of librarians is presented in Table 4.15.

Table 4.15 Relationship between knowledge creation and innovation of librarians

Variable	Mean	Std. Dev.	N	r	Sig P	Remark
Innovation of Librarians	86.5946	12.5340	518	.381*	.000	Sig.
Knowledge Creation	38.6429	5.9733				

* Sig at 0.5 level

Table 4.15 reveals that there was a positive significant relationship between knowledge creation and innovation of librarians in federal universities in Nigeria (r = .381*, N= 518, p <.05). Hence, knowledge creation is positively associated with the innovation of the librarians in federal universities in Nigeria. The null hypothesis is rejected.

Ho3: There is no significant relationship between knowledge sharing and creativity of librarians in federal universities in Nigeria

Relationship between knowledge sharing and creativity of librarians is presented in Table 4.16.

Table 4.16 Relationship between knowledge sharing and creativity of librarians

Variable	Mean	Std. Dev.	N	r	Sig P	Remark
Creativity of Librarians	85.4537	10.3156	518	.611*	.000	Sig.
Knowledge Sharing	98.4653	11.5411				

* Sig at 0.5 level

Table 4.16 shows that there was a positive significant relationship between knowledge sharing and creativity of librarians in federal universities in Nigeria (r = .611*, N= 518, p <.05). Hence, knowledge sharing is positively associated with the creativity of the librarians in federal universities in Nigeria. The null hypothesis is rejected.

Ho4: There is no significant relationship between knowledge sharing and innovation of librarians in federal universities in Nigeria

Relationship between knowledge sharing and Innovation of librarians is presented in Table 4.17

Table 4.17 Relationship between knowledge sharing and innovation of librarians

Variable	Mean	Std. Dev.	N	r	Sig P	Remark
Innovation of Librarians	86.5946	12.5340	518	.496*	.000	Sig.
Knowledge Sharing	98.4653	11.5411				

* Sig at 0.5 level

Table 4.17 reveals that there was a positive significant relationship between knowledge sharing and innovation of librarians in federal universities in Nigeria (r = .496*, N= 518, p <.05). Hence, knowledge sharing is positively associated with the innovation of the librarians in federal universities in Nigeria. The null hypothesis is rejected.

Ho5: There is no significant relationship between knowledge use and creativity of librarians in federal universities in Nigeria

Relationship between knowledge use and creativity of librarians is presented in Table 4.18.

Table 4.18 Relationship between knowledge use and creativity of librarians

Variable	Mean	Std. Dev.	N	r	Sig P	Remark
Creativity of Librarians	85.4537	10.3156	518	.646*	.000	Sig.
Knowledge Use	48.9286	6.6473				

* Sig at 0.5 level

Table 4.18 shows that there was a positive significant relationship between knowledge use and creativity of librarians in federal universities in Nigeria (r = .646*, N= 518, p <.05). Hence, knowledge use is positively associated with the creativity of the librarians in federal universities in Nigeria. The null hypothesis is rejected.

Ho6:There is no significant relationship between knowledge use and innovation of librarians in federal universities in Nigeria

Relationship between knowledge use and innovation of librarians is presented in Table 4.19.

Table 4.19 Relationship between knowledge use and innovation of librarians

Variable	Mean	Std. Dev.	N	R	Sig P	Remark
Innovation of Librarians	86.5946	12.5340	518	.449*	.000	Sig.
Knowledge Use	48.9286	6.6473				

* Sig at 0.5 level

Table 4.19 reveals that there was a positive significant relationship between knowledge use and innovation of librarians in federal universities in Nigeria (r = .449*, N= 518, p <.05). Hence, knowledge use is positively associated with the innovation of the librarians in federal universities in Nigeria. The null hypothesis is rejected.

Ho7: There is no significant relationship between knowledge creation and knowledge sharing of librarians in federal universities in Nigeria

Relationship between knowledge creation and sharing of librarians is presented in Table 4.20.

Table 4.20 Relationship between knowledge creation and knowledge sharing of librarians

Variable	Mean	Std. Dev.	N	R	Sig P	Remark
Knowledge Creation	38.6429	5.9733	518	.516*	.000	Sig.
Knowledge Sharing	98.4653	11.5411				

* Sig at 0.5 level

Table 4.20 reveals that there was a positive significant relationship between knowledge creation and knowledge sharing of librarians in federal universities in Nigeria (r = .516*, N= 518, p <.05). Hence, knowledge creation is positively associated with the knowledge sharing of the librarians in federal universities in Nigeria. The null hypothesis is rejected.

Ho8: There is no significant relationship between knowledge sharing and knowledge use of librarians in federal universities in Nigeria

Relationship between knowledge sharing and use of librarians is presented in Table 4.21.

Table 4.21 Relationship between knowledge sharing and knowledge use of librarians

Variable	Mean	Std. Dev.	N	r	Sig P	Remark
Knowledge Sharing	98.4653	11.5411	518	.628*	.000	Sig.
Knowledge Use	48.9286	6.6473				

* Sig at 0.5 level

Table 4.21 shows that there was a positive significant relationship between knowledge sharing and knowledge use of librarians in federal Universities in Nigeria (r = .628*, N= 518, p

<.05). Hence, knowledge use is positively associated with the knowledge sharing of the librarians in federal universities in Nigeria. The null hypothesis is rejected.

Ho9: There is no significant relationship between knowledge creation and knowledge use of librarians in federal universities in Nigeria

Relationship between knowledge creation and use of librarians is presented in Table 4.22.

Table 4.22 Relationship between knowledge creation and knowledge use of librarians

Variable	Mean	Std. Dev.	N	R	Sig P	Remark
Knowledge Creation	38.6429	5.9733	518	.519*	.000	Sig.
Knowledge Use	48.9286	6.6473				

* Sig at 0.5 level

Table 4.22 shows that there was a positive significant relationship between knowledge creation and knowledge use of librarians in federal universities in Nigeria (r = .519*, N= 518, p <.05). Hence, knowledge creation is positively associated with the knowledge use of the librarians in federal universities in Nigeria. The null hypothesis is rejected.

Ho10: Knowledge creation, sharing and use will not significantly predict creativity of librarians in federal universities in Nigeria

Joint prediction of knowledge creation, sharing and use on creativity of librarians is as presented in Table 4.23.

Table 4.23 The Joint prediction of independent variables (knowledge creation, sharing and use) oncreativity of librarians.

R	R Square			Adjusted R Square	Std. Error of the Estimate	
.699	.488			.485	7.4019	
A N O V A						
Model	**Sum of Squares**	**DF**	**Mean Square**	**F**	**Sig. P**	**Remark**
Regression	26852.971	3	8950.990	163.373	.000	Sig.
Residual	28161.417	514	54789			
Total	55014.388	517				

a. Predictors: (Constant), knowledge creation, knowledge sharing, knowledge use.
b. Dependent variable: Creativity of the librarians

Table 4.23 presents the summary of the regression analysis of creativity of the respondents. It can be inferred from table 4.23 that knowledge creation, knowledge sharing and knowledge use significantly predicted creativity of the respondents ($F = 163.373$, $df= 3;514$, $p <.05$). Moreover, knowledge creation, knowledge sharing and knowledge use had significant multiple relationship with the creativity of respondents (adj $R= 0.699$, $p <.05$). In addition, the adjusted R square = (0.485, $p <.05$) implies that knowledge creation, sharing and use accounted for 48.5% variance in creativity of the respondents. Other variables not included in this model may have accounted for the remaining variance. Therefore, the hypothesis that stated that knowledge creation, sharing and use will not significantly predict creativity of the librarians in the federal universities in Nigeria is rejected.

Ho11: Knowledge creation, sharing and use will not significantly predict innovation of librarians in federal universities in Nigeria

Joint prediction of knowledge creation, sharing and use on innovation of librarians is presented in Table 4.24.

Table 4.24 The Joint prediction of independent variables (knowledge creation, sharing and use) oninnovation of librarians

R	R Square			Adjusted R Square	Std. Error of the Estimate	
.536	.287			.283	10.6154	
A N O V A						
Model	**Sum of Squares**	**DF**	**Mean Square**	**F**	**Sig. P**	**Remark**
Regression Residual Total	23299 57921.076 81220.865	3 514 517	7766.596 112.687	68.922	.000	Sig.

a. Predictors: (Constant), knowledge creation, knowledge sharing, knowledge use.
b. Dependent variable: Innovation of the librarians

Table 4.24 presents the summary of the regression analysis of creativity of the respondents. It can be inferred from table 4.24 that knowledge creation, knowledge sharing and knowledge use significantly predicted innovation of the respondents ($F = 68.922$, $df= 3;514$, $p <.05$). Moreover, knowledge creation, knowledge sharing and knowledge use had significant multiple relationship with the innovation of the respondents (adj $R= 0.532$, $p <.05$). In addition, the adjusted R square = (0.283, $p <.05$) implies that knowledge creation, sharing and use accounted for 28.3% variance in innovation of the respondents. Other variables not included in this model may have accounted for the remaining variance. Therefore, the hypothesis that stated that knowledge creation, sharing and use will not significantly predict innovation of the librarians in the federal universities in Nigeria is rejected.

4.6 Discussion of the findings

This section discusses the findings of this study.

4.6.1 Level of knowledge creation by the librarians

The outcome of the responses received on the level of knowledge creation by librarians revealed that librarians create knowledge in the areas of generation of new ideas that improved

their business operations and methods, introduction of new services to meet user's needs, introduction of new service through intuition for solving problems and that they create new techniques leading to the production of new information products for internal use. Librarians create knowledge most especially on compilation of bibliographies on various subjects of interest to users. On the overall, the findings revealed that the level of knowledge created by librarians in the federal universities in Nigeria is high. The result is in consonance with the previous findings of Gillum (2010) who remarked that the research performed by the librarians in their scholarly writing process actually helped them with their daily problem solving.

Furthermore, the result of the findings revealed that librarians create both tacit and implicit knowledge. Majority of the respondents agreed that they have created knowledge packaging techniques for formalising workers' experience, new ideas, information, insight, intuitions and lot more. The result corroborated the existing study of Chang (2015) and Joint Statement on Faculty Status of College and University Libraries (2012) who found that librarians teach by impacting knowledge and skills to students and faculty members both formally and informally. They further agreed that librarians serve by engaging in meaningful services and that they are essentially required to function as part of the faculty and knowledge creator.

Relating the level of knowledge created by librarians, Hamzah, Hisham, Musa, Awang and Hanipah (2014) in their study on knowledge production for evidence-based librarians in public universities of Malaysia found that the culture of creating knowledge among librarians is still very low. They maintained that the stronger the culture of the knowledge creation, the more librarians will love to create knowledge either through practice or by writing. Although, their line of thought was correct, yet their findings contradicted the present finding on knowledge creation by librarians. The contrast may be linked with environment of work and the level of motivation to create knowledge. If the motivation to create knowledge is low, the knowledge creation output will definitely low. The findings of this study revealed that the level of knowledge created by librarians is very high. The reason for the high level of knowledge creation by librarians in the federal universities in Nigeria may be linked with the adequate funding enjoyed by the employees of the federal universities in Nigeria.

Librarians create knowledge in the form of databases and databanks for library user, identify new search engines for searching information on the internet, discovered new approach for dealing with computer virus and data loss in their libraries. This study agreed with the stance

of Mutula and Mooko (2008) who stated that librarians create knowledge in the form of products and services such as online database, websites creation, policy briefs, intranets, extranet and portals. The finding of this study is at variance with the findings of Townley (2001) who posit that libraries have done well in creating information and intelligence from data, but have not done better in the area of knowledge creation.

4.6.2 Types of knowledge created by librarians

The result on the types of knowledge created by librarians indicated that majority of the respondents create knowledge. The study revealed that the librarians create knowledge in the form of bibliographic compilation, publishing in high impact journal, writing conference papers and producing technical reports. This report supported the findings of Galbraith, Smart, Smith and Reed (2014) that librarians in the universities are publishing most regularly in high-impact peer review journals than librarians in other academic libraries. This is so because librarians in the university are part of academic staff and are expected to publish in peer review journals so as to earn their promotion. The study also corroborated the findings of Hamzah et al, (2014) who maintained that types of knowledge created by the librarians in public universities of Malaysia includes conference papers, journal articles, books, review, reports, and article in magazine.

Similarly, the study found that librarians create knowledge in form of bibliographies, blogs, journals, current listing of literature and building cost models for information service delivery. This is in line with the findings of Okonedo and Popoola (2012) who averred that librarians in public universities in South-west, Nigeria create knowledge in the form of journal publication, books and chapter(s) in book, conference papers, patents, technical reports. A critical look at their findings showed that librarians are knowledge creators. When knowledge are created by the librarians, Srinivas (2007) identifies various formats or products in which such knowledge created can be packaged. The knowledge created by the librarians can be packaged into abstracts, alerts, announcements, policy briefs, bibliographies, indexes, catalogues, best practices, brochures, books, bulletins, charts, databases, diaries, blogs, journals, metadata, models, standard and practices, directories of expertise, intranets etc. This study agreed with the findings of Srinivas (2007) and Apolinario et al (2014) on the types of knowledge that are created by the librarians, which include publishing in Phillipine journal of information science as well as in the IFLA publications.

It can be said that librarians in federal universities in Nigeria create knowledge in different areas. They are course curriculum designer, creator of password for information security, producer of monographs, publishers of textbooks especially in library and information services delivery, experts in developing formula for budget preparation and lot more. This new status of librarians are made possible because of multi-dimensional subject background of librarians. Librarianship is a profession that encompasses all forms of subject background. For instance, aside the fact that librarianship is a technology driven profession, those who have their subject background in sciences, or engineering will find it easy to excel in the area of technology applications than those who have humanities as their subject background. The finding of this result is a welcome development especially in the face of deployment of technology that has permeated virtually all areas of life and librarians are not to be left out. It will not be ambiguous that very soon, librarians will dominate the market of developing software applications that are needed in libraries.

4.6.3: Level of knowledge sharing by librarians

Result on the level of knowledge sharing by librarians revealed that majority of librarians shared knowledge among themselves. The study found that majority of librarians think that they should have access to experience of one another in the library. This is in line with the submission of Tan, Lye and Lim (2010) that when knowledge is shared among librarians, the process of bringing knowledge and getting knowledge would have been established and that librarians with limited knowledge will benefit from the advantage of knowledge sharing. McAdam, Moffett and Peng (2012) also maintained that when knowledge is shared among employee of any organisation, each worker will learn from the experiences and practices of one another especially if it is done under an enabling environment. The study further revealed that librarians shared more of coded knowledge than the tacit knowledge. As revealed from the study, 97.6% of the respondents claimed that they shared working skills got from the document on job related matter with their colleagues. This finding corroborated the findings of Apolinario, Eclevia, Lagrama and Sagun (2014) that librarians in Phillipines shared knowledge through the channel of journal publication with their colleagues.

The result is also in consonance with the findings of Okonedo and Popoola (2010) in Nigeria, Opeke and Opele (2014) on the knowledge-based view of the universities maintained that there is substantial knowledge sharing in term of academic knowledge and expertise in the form of

journal publications and teaching among its members. A positive attitude of the librarians towards knowledge sharing is also discovered in the study and this is because most of them also shared tacit knowledge with their colleagues. They shared experiences about cataloguing and classification, new experiences and lessons learnt through personal interaction with colleagues. This is in line with the findings of Boateng, Agyemang, Okoe and Meusah (2017) that knowledge sharing help workers to solve problems, learn new things and increase understanding. Similarly, Ilako and Ikoja-Odongo (2011) noted that Makerere University Library staff in Uganda shared their knowledge, specifically with librarians in the Southern Sudan. The findings showed that librarians shared knowledge in the form of experience, insight, (tacit) as well as in the codified form (explicit).

The findings of the study revealed further that librarians shared knowledge with colleagues whenever they asked for it, shared knowledge about new trends in librarianship with colleagues are willing to share the knowledge even if it is outside library matter, shared experiences on library automation with colleagues, shared useful experience and ideas through seminars and workshops with colleagues. They shared new working skills learnt at conferences with colleagues, shared actionable information with colleagues during staff meeting, shared insight about readers services with colleagues and they engaged in knowledge sharing through orientation and induction of new staff. Librarians shared experience about serials management with colleagues, they are willing to share their working skills with colleagues if it will be acknowledged and appreciated and that they shared knowledge through community of practice. The findings is however at variance with the finding of Onifade (2015) in a survey of knowledge sharing among librarians in Nigeria where it was submitted that Nigeria librarians do not really share knowledge among one another. It could however be deduced from the test norm that the level of knowledge sharing among the librarians in the federal universities in Nigeria is good.

The findings of the study which revealed that the level of knowledge sharing among the librarians in the federal universities in Nigeria is high is at variance with the study of Akparobore (2015) whose result revealed that the rate at which the librarians in university libraries in Nigeria shared knowledge is low. The finding of this research affirmed the position of two major findings among university librarians in South-west, Nigeria (Okonedo and Popoola, 2012 and Awodoyin, Osisanwo, Adetoro and Adeyemo 2016) who found out that there was a high level of knowledge sharing among librarians studied.

Other inferences that can be rightly drawn from the findings of the study is that there is mutual relationship among the librarians investigated. It should be noted that where there is no mutual co-existence among employees, it will be difficult to establish a good knowledge sharing culture. The result showed further that while the respondents shared actionable information with their colleagues, their colleagues reciprocated the same gesture. Majority of the respondents affirmed that they do not only share their experience with their colleagues, they also shared from their colleague's new library experiences. 84% of the respondents agreed that their colleagues share new working skills they learnt at conferences with them. This assertion is in agreement with the submission of Zamiri and Baeutayan (2012) who claimed that knowledge sharing is an essential component of knowledge management process and it is associated with the exchange of information and transferring of knowledge among librarians.

4.6.4 Channels of knowledge sharing by the librarians

The result of the study showed various channels through which librarians in the federal universities in Nigeria shared their knowledge. The main channel used is through face-to-face interaction and 97.5% of the respondents shared their knowledge through this medium, 94.8% shared their own knowledge through mobile phone, while 90.7% of the respondents' use e-mail as their medium of knowledge sharing among librarians. This is in support of the findings of Awodoyin et al (2016) who found that academic librarians in Nigeria primarily use face-to-face interaction, mobile phones, e-mails and newsletter as a means of knowledge sharing among one another. It is also deduced from the study that librarians in federal universities in Nigeria employed the medium of personal interactions as well as the use of technologies to disseminate information among one another.

This finding supported the earlier findings of Anna Pupsitasari (2013) who maintained that prominent among technologies use by librarians for knowledge sharing includes; email, mobile telephone, Internet telephone, Google scholar and yahoo messenger among librarians. Other channels of knowledge sharing used by the librarians as revealed from the study are formal/informal meeting(92.7%), seminars, workshops and symposia (90.9%), mentoring (86.5%) and peer assistance (87.1%). This finding agreed with those findings of Okonedo and Popoola (2012) that majority of the librarians in Nigeria shared knowledge through seminars and workshops. Similarly, Maponya (2004) studied knowledge management practices in academic libraries in South

Africa, reported that librarians shared knowledge informally among themselves. This is a good development among librarians, when compared with the findings of Onifade (2015) who found that librarians in Nigerian public universities do not share knowledge among one another. This result may be linked with the fact that every organisation is beginning to understand the need for the knowledge to be shared especially on work related knowledge.

Several organisations who have invested heavily on manpower development but failed to incorporate the culture of knowledge sharing among their employees find themselves regretting especially when such an employee suddenly leave the organisation. Therefore, there is great hope for continuity of effective service delivery based on the findings of this study. Librarianship as a profession is not likely to suffer brain-drain because of the culture of knowledge sharing that librarians in the federal universities employed. The study also found positive attitude to use of information technologies especially the use of social media as a channel through which librarians shared knowledge among themselves. The study revealed that majority of the respondents used WhatsApp as channel of knowledge sharing. Other medium used by majority of the respondent includes: Google scholar, Twitter, Facebook, LinkedIn, Internet telephone, coaching, knowledge fair, research gate, You Tube, video conferencing, blogs and a host of other medium. The finding confirmed previous empirical studies of (Danesgar and Parirokh, 2007; Mavodza, 2010; Nassuora, 2011) that librarians use the medium of Web 2.0 such as Facebook, Twitter, You Tube and blogs to share information among themselves as well as with library users.

Furthermore, the study revealed that librarians share knowledge through communities of practice like the Nigerian Library Association (NLA) online forum. Among the respondents, 80.3% agreed to the fact that they shared their knowledge through the platform of NLAs' online forum, 71.6% of the respondents shared knowledge through LinkedIn, 79.1% shared theirs through library news/ bulletins, while 67% respondents shared their own information through Research gate. It should be noted however that such attitude should be maintained by the librarians. The advantage of this to the librarianship profession is that it gives access to the best practices in the profession. This is in consonance with the findings of Sanchez, Collado-Tuiz and Cebarin-Tarasson (2013) who posit that personal and organisational factors are predictors for good knowledge sharing behavior. The findings of the study corroborated the findings of Alrashdi and Srinivas (2016) in a study in Sultan Qaboos University Library, Iran, who found mobile applications as a major means of sharing knowledge by the library professionals

4.6.5: Level of knowledge use by librarians in Nigeria

The result on the level of knowledge use by librarians in federal universities in Nigeria indicated that librarians have high level of knowledge use. The study further revealed that significant number of the librarians, (97.5%) rightfully applied new ideas gained from their colleagues to enhance their work performance. This finding is in line with the earlier findings of Okonedo & Popoola (2012), who posited that 77% librarians in public universities libraries in South-West, Nigeria, made use of ideas gained from colleagues for better work performance. Okonedo & Popoola, (2012) in their study on self-concept, knowledge sharing and knowledge utilisation of librarians in Nigeria earlier submitted that librarians use knowledge gotten from library document (explicit) to generate new research skills and knowledge gotten from colleagues (tacit) significantly enhance their work performance. This finding has a direct relationship with their submissions. The high rate at which librarians in Nigeria used knowledge cannot be over emphasized. This is further revealed that 92.5% respondent uses actionable information obtained from workshops, seminars and symposia to publish more scholarly papers.

The outcome of this finding on level of knowledge use by librarians is in consonance with the findings of Agba, Kingigo, Bukenya and Nymba (2004) in South Africa who maintained that knowledge gained by librarians through seminars/workshops had helped many librarians to increase their research productivity. Also, in line with the findings of this study is the study of Kemoni, (2002) that, the exchange knowledge among librarians in Kenya, had a positive effect on their research output.

The findings of the study also showed that knowledge acquired/derived from colleagues has greatly improved the information searching skill of the librarians. Majority of the respondents affirmed that cataloguing and classification of library materials has become much easier for them as a result of knowledge acquired through their colleagues. This is in line with the findings of Ralph and Tijerino (2009;2013) who stressed that cataloguers have used record shared through collective cataloguing, using the bank of other libraries such as Library of Congress (LC), Online Computer Library Centre (OCLC) among others to perform their duties as cataloguers

A critical examination of the result of this findings revealed that 91.9% of the respondents claimed that effective use of electronic information resources has helped them to present seminars and workshops in a better way, and that application of actionable information gained from colleagues has helped them to discharge their duties more efficiently. Likewise, 91.3% of the

respondents maintained that they used experience acquired (tacit) from colleagues to provide better references services and to find solution to problems they encountered on the job. In support of this finding, Salisbury (2003) and Husain & Nazim (2013) remarked that the purpose of making knowledge available is to improve the performance of an individual or work group. Also, in agreement with the finding of this study is the study of Kulkarni, Ravindran and Freese (2006) who stressed that the essence of deployment of knowledge object into work practices is for problem solving and decision making.

4.6.6 Level of creativity of the librarians

It was discovered that out of the 518 librarians in the 40 federal universities in Nigeria 493 (95.2%) had high level of creativity, 22(42%) had moderate level of creativity while 3(0.6%) had low level of creativity. These responses revealed that librarians in Nigeria displayed high level of creativity behavior in their work environment. From the analysis of the result, it was discovered that this was made possible because majority of the librarians investigated (95.2%) were interested in their work and find it rewarding. The finding is in consonance with the submission of Henriksen, Mishra and Fisser (2016) who maintained that creativity is linked with generation of useful ideas primarily at individual level. If an employee lack interest in what they do at the individual level, it will be difficult to exhibit creative behaviours. The finding also revealed that 96.3% of the respondents are confident that they can perform creatively on different tasks at work, 93.8% affirmed that creativity at work is important to them, 89% maintained that they demonstrate originality in their work. This is consonance with existing findings of Elisondo, Donolo and Rinaudo (2013), Mamo and Amidu (2015) and Borghini (2005) who stressed that creativity in libraries encompasses the development of new ideas, new solution to a problem, new methods device or new artistic objects, Borghini (2005) claimed that most common features attributed to creativity are the concepts of novelty/originality and value.

Furthermore, the study revealed that previous experience has a significant role in determining the creativity of librarians $\bar{x} = 3.31$, SD = 0.61. Other factors that showed the creativity of librarians includes: their confidence and commitment in working with heir orgnisation (93.1%), working with others to maximize innovation, (94%), being not afraid when facing challenges at work (92.9%) and like taking risks at work (82.4%). It should be noted that all the indicators of measurement positively affirmed that the level of creativity of the librarians in Nigeria is high. The findings is in support of the earlier submission of Coveney (2008) while

assessing the organisational climate for creativity in a United Kingdom (UK) public library service and found that actions and commitment are required by libraries and librarians to set free the desire that already exists within them to initiate creative acts. The outcome of this study is a welcome development especially in the field of Library and Information Science, the reason is because, when librarians begin to apply knowledge got from colleagues to job schedule, library users will continue to enjoy functional and adequate service delivery. Watson (2008) submitted that the success and survival of any library sciences depends on the creativity of library managers to take responsibility for it to occur and develop within the library service. Therefore, librarians in Nigeria need to sustain the tempo for the survival of library practice in Nigeria.

4.6.7 Level of innovation of librarians

The result on the level of innovation by the librarians indicates that the majority of the librarians exhibit high innovation behaviours. The study found that librarians enjoy trying new ideas and only few librarians declined this assertion. Majority of the respondents always seek out new ways of delivering library services to their user. The result corroborated the findings of a study in Nigeria by Onuoha, Anyawu, Ossai-Onah and Amaechi (2015) who remarked that innovation in librarianship is all about looking for new ways to improve library services. The study also found that innovation in library involved the combined effort of librarians to create new products and services. When new products and services are created, either by individual or through the combined effort of the librarians, the library management promotes the implementation of such ideas.

This is in support of the findings of Rowley (2011) when he developed a model for innovation strategy in UK, and found innovative and creative team, leadership, effective design and management of innovation processes as part of strategies that enhanced the innovation of the librarians. Consistent with the finding of this study is the study by Leong and Anderson (2012) who studied how academic libraries in Australia attempted to enhance its pace of innovation. Their result showed that strategies implemented to achieve their goals are leadership development, cross unit work, specific purpose working group and the promotion of involvement in professional associations. Although the significant contribution of leadership development to the level of innovation by librarians was not reported. The level of innovation by librarians was further expantiated when 88.6% of the respondents claimed that they frequently improvice methods for solving problems even when the answer is not apparent; 85.1% averred that

implementing new proposals are welcome in their library. The result further showed that majority of the respondents possessed skills and expertise to create new products and services.

The result obtained in this study showed that out of the 518 librarians in the 40 federal universities in Nigeria, 360 (69.5%) had high level of innovation, 155(29.9%) had moderate level of innovation while 3(0.6%) had low level of innovation behaviours. The high level of innovation by librarians was revealed in the techniques they use in marketing library products and services. To make libraries especially academic libraries attractive to users, librarians have adopted proper dressing as part of the techniques. Librarians use tools of user education to promote the image of the library to members of the faculty and students, and high premium is placed on provision of access to electronic information. Librarians now ensure that they fully participated in institutional functions and they have increased their interpersonal relationship between staff and users. This finding is in agreement with the findings of Zaid and Oyelude (2013) when they surveyed the creativity and innovation in two Nigerian Academic libraries, and found that electronic resources management services and incorporation of web 2.0 tools in library, introduction of virtual environment and making available 24hours library services are parts of innovation introduced to the library. The study further corroborated the finding of Salami (2014) who maintained that marketing library services is a major innovation that have been introduced into the library in the recent years.

4.6.8 Relative contribution of knowledge creation, sharing and use to the prediction of creativity of librarians in federal universities in Nigeria

The study used the hierarchical standardised regression coefficient to determine the relative contribution of the independent variables in explaining the dependent variable. The result revealed that knowledge creation (β =.311, $p< 0.05$), knowledge sharing (β =0.328, $p< 0.05$) and knowledge use (β =.422, $p< 0.05$) made significant relative contribution to the prediction of creativity. Thus, knowledge creation, knowledge sharing and knowledge use predicted and contributed significantly to the creativity of the librarians in federal universities in Nigeria. The present study confirmed the findings of Amabile and Khasire (2008); Gong et al, (2012) and Zhang and Bartol (2010) who submitted that by interacting with others, employee can pool informational resources relevant to their task or problem identified in workplace, be esposed to variety of ideas and ways of thinking, thereby have higher chance of synthesising the shared resources into a new body of domain knowledge.

Similarly, the study affirmed the finding of Tiwana and McLean (2005) who maintained that higher degree of knowledge sharing supports individual learning process, individual creative skills and also serves as a bulding block of individual creativity. Furhermore, the finding of this study corroborated the findings of He, et at (2013) that sharing explicit knowledge with others stimulates the employees' creative outcomes. The finding of this study is however at variance with the submissions of Haas and Hansen (2007) and Cheung (2008) who claimed that knowledge sharing and creativity does not necessarily improve employees creativity.

The result of this study confirms the findings of Ansari's study (2011) who examined the association between knowledge management and creativity in the physical education department of Tehran, the result showed noteworthy association between knowledge management and creativity. Similarly, result of present study is also consistent with results of Nayerand Jokar (2012); Ansari (2011); Mosloo (2009); Ardakani, Damaki, Nasab and Golkarieh (2008); Rahimi (2012): the results of all of these studies indicate that there is a significant positive association between knowledge management and creativity. Furthermore, the finding of this study is in tandem with the results of Najm (2009) and Amani (2008) who found a noteworthy positive association between knowledge management and creativity. Then this study also showed that there is a positive and noteworthy association between knowledge management and creativity that is consistent with present study. It can be said that knowledge management processes like knowledge creation is one of the important factors in explaining the creativity of librarians in the university.

4.6.9 Relative contribution of knowledge creation, sharing and use to the prediction of innovation of librarians in federal universities in Nigeria

The study employed the use of Multiple regression analysis to determine the relative contribution of the independent variables in explaining the innovation of librarians, the result revealed that knowledge creation (Beta =0.120, $p< 0.05$) knowledge sharing (Beta =0.315, $p< 0.05$) and knowledge use (Beta =0.189, $p< 0.05$) made significant relative contribution to the prediction of creativity of the respondents. Thus, knowledge creation, knowledge sharing and knowledge use predicts and contributes significantly to the innovation of the librarians in federal universities in Nigeria. The implication of this is that all the predictor variables:

knowledgecreation, sharing and use relatively and significantly predicted the innovation of the librarians in federal universities in Nigeria.

The study corroborated the findings of Islam, et al (2017) where it was established that knowledge creation/capture, knowledge sharing and knowledge use/application is significantly related to service innovation of 107 librarians in academic libraries in 39 countries. It should be noted however, that there may be other factors which can aid the relative prediction of knowledge creation to the innovation of the librarians that are not considered in this study. The findings of this study confimed the result of a study in Taiwan on knowledge sharing climate, organisational demography and organisational innovation by Chen (2014) who claimed that knowledge sharing is a key factor determining organisational innovation. Chen (2014) further found that knowledge sharing foster trust mechanisms that is conducive for organisational innovation and that knowledge sharing enhances the bond among members and creates the opportunity for knowledge creation.

Furthermore, the findings of this study confirned what obtained in literature: Frohman 1982; Attata et al 2014; Islam and Khan, 2014; Yesil and Dereli, 2013; Yesil, 2014 and Mafini, 2015 who submitted that organisation culture, and shared knowledge contribute to organisational innovation performance.

4.6.10 Relationship between knowledge creation and creativity of librarians

The result of relationship between knowledge creation and creativity of librarians indicated that knowledge creation had positive association with the creativity among the librarians. It showed that the relative influence is correlated to be $r = 0.423$, $p < 0.05$. The result established a significant relationship between knowledge creation and creativity of the librarians. The finding is in support of the stance of Atlay and Tekin (2013) in Istanbul, Turkey who saw knowledge creation as an enablers of creativity of librarians across Istanbul. The finding of the study also corroborated the reports by Kapu and Busturk (2013). Auerrnhammer and Hall (2013); and Kulakli and Mahony (2014), that knowledge creation and creativity requires flexible environment to thrive.

Similarly, on the basis of significant relationship between knowledge creation and creativity of the librarians as established by the study, Ikwuegbu (2010) had earlier found that creativity is borne out of knowledge creation i.e doing out of experience, interpretation and

evaluation of challenges encountered that result in something new or novel. Therefore, librarians' creativity is likely to go higher if library managers allow the librarians to utilise their inherent creative ability. This is in line with the assertionsof Zhou, shin and Cannella (2008) who posit that creative performance is considered as the production of novel and potentially useful ideas produced by an individual. Creativity could then be considered as an outcome of a creative process of an individual.

Furthermore, going by the findings of this study that significant relationship exist between knowledge creation and creativity of librarians, the result corroborated the findings of Mazhar and Akhtar (2018), who studied the relationship between knowledge management processes and creativity among Teachers of public and private sector universities at Lahore, the strength of the relationship between knowledge management and creativity was r= .392 (**) at 0.000 level of significance. It therefore concluded that a noteworthy association exist between knowledge management processes and creativity of Teachers of public and PSU at Lahore.

4.6.11 Relationship between knowledge creation and innovation by librarians

The test of relationship between knowledge creation and innovation of librarians revealed that knowledge creation had positive significant relationship with the innovation of librarians (r = 0.381, at .0000 level of significance. As a result, it is established from the study that knowledge creation is positively associated with the innovation of the librarians. This is in consonance with the finding of Popadiuk and Choo (2006) that innovation to a large extent depends on knowledge creation. They argued that knowledge creation involved the development of new capabilities while innovation on the other hand is concerned with how the capabilities will be turned into products and services that have economic value in the market. The finding is also consistent with the submission of Chatzekel (2007) who found that innovation is one of the new elements which is being associated with knowledge creation.

Similarly, the finding of this study is consistent with the arguments of researchers (Agile, 2010; Scupola and Westh, 2010; Mavodza and Ngulube, 2011b). Specifically, Mavodza and Ngulibe (2011b) in South Africa argued that the ability of library to create new knowledge is essential to its innovation capabilities. Agile (2010) maintained that the two aspects to innovation is the development of ideas and the implementation of the ideas developed.

The finding of this study is consistent with the submissions of the following studies: (Chen, 2014; Dalkir, 2013; Islam et al, 2017) who posit that knowledge management processes i.e. knowledge creation and utilisation will facilitate certain well-differentiated innovations, either internal-sourced or external-sourced. He maintained that knowledge creation supports internal-sourced innovations while knowledge utilisation supports external-sourced innovations. Therefore, the creative ability of librarians will dictate the pace of their innovative performance.

4.6.12 Relationship between knowledge sharing and creativity of librarians

The study showed that there was a positive significant relationship between knowledge sharing and creativity of the librarians. r = 0.611 at 0.000 level of significance. The implication of this finding is that as the level of knowledge sharing increases, the level of creativity will also increased, i.e. Increase in the level of knowledge sharing means increase in the level of creativity and vice versa. The finding is consistent with the submission of He, Cho, Qi, Xu and Lu (2013) that sharing explicit knowledge with others stimulates the employees' creative outcomes. The result is also in tandem with Nonakas' theory of knowledge creation especially the aspect of 'combination and internalisation' mode of knowledge conversion.

This study found that knowledge sharing allows librarians to access information not only through the traditional printed sources, but also through various formats via the Internet. Therefore, knowledge sharing could be seen as an enabler of librarians' creativity. When the mechanism of effective knowledge sharing is put in place among the librarians, it will enhance their productivity and effective service delivery. This result correlates with the findings of He, et al (2013) who found a positive relationship between knowledge sharing and employee creativity.

Knowledge sharing has been found to be positively related to creativity. Consistent with the result of this study is the findings of Lee (2018) who found that the quality of knowledge sharing was a major factor that facilitated individual creativity. It meant that individual creativity could be improved through visible support by increasing the members' social networks, building a culture of trust and identification, and encouraging the use of a smart device for knowledge sharing.

4.6.13 Relationship between knowledge sharing and innovation of librarians

A test of relationship between knowledge sharing and innovation of librarians revealed that knowledge sharing had a positive significant relationship with the innovation of librarians. r

= 0.496 at 0.000 level of significance. This implies that the degree of knowledge shared among the librarians will determine the extent to which such knowledge can be applied on work performance.

The finding is in consonance with the submission of Chen, (2014) in Taiwan who found a significant and positive correlation between knowledge sharing climate and organisational innovation. The implication of this is that individual or organisational innovation may be farfetched unless there is a provision of knowledge sharing climate. Therefore knowledge sharing climate is a key determinant of organisational innovation success. The following studies: Yesil and Dereli, 2013; Islam and Khau 2014; Mafini, 2015; Islam, et al 2015; and Islam, et al 2017 corroborated the findings of this study. They found that the benefit of shared knowledge contributes significantly to organisational innovation and performance. The findings of this study is constant with the submissions of Jegede (2012) and Jegede et al (2013) that cross-border sharing of knowledge improves innovative performance of employee.

This study found that knowledge sharing has a significant chance of increasing innovation. It correlate with the finding of Asgharian, Zohoori, Malakoutis, Attarnezhad (2013) in a study of Electronic Industry in Iran, who found that a great number of organisations have realised that their corporate knowledge is an important source of developing sustainable competitive edge especially in the current state of the business environment. Therefore when knowledge is shared among librarians most especially on job related matters, innovation in the library environment will increase significantly.

4.6.14 Relationship between knowledge use and creativity of librarians in federal universities in Nigeria

The test of relationship between knowledge use and creativity of the librarians revealed that there was a positive significant relationship between knowledge use and creativity of the librarians r = 0.646 at 0.000 level of significance. This implies that the level of use of an ideas will go a long way to determine how much a new ideas could be generated from the utilisation of such ideas. As a result, the study established that significant association exists between knowledge use and creativity of librarians.

The finding is in consonance with the finding of Shorunke (2014) in a study in Lagos on organisational support, knowledge sharing and utilisaton as correlates of social capital and

dynamic capabilities of Insurance managers found that Insurance managers use knowledge gained from colleagues to publish more scholarly articles, present better seminar and workshops papers, improve job performance, generate new research skills and solve problems in their organisations.

4.6.15 Relationship between knowledge use and innovation of librarians in federal universities in Nigeria

The findings revealed that a positive relationship exist between knowledge use and innovation of librarians in federal universities in Nigeria r = 0.0449 at 0.000 level of significance. The implication of this finding is that as librarians applied knowledge gained through face-to-face discussion, knowledge acquired through seminars, workshops and conferences, their level of innovation will definitely rise. Knowledge, as good as it may look like, will continue to be redundant until it is applied to improve work performance. The result correlated with the finding of Kankanhalli et al (2011) in their study of knowledge reuse through electronic repositories that had positively linked knowledge use with firm innovation. The findings is in conformity with the stance of Okonedo and Popoola (2012) in their study on university librarians in Southwest, Nigeria who revealed that 88.8% librarians applied knowledge gained from colleagues to enhance work performance and to generate new research skills.

The finding is also consistent with the submission of Shorunke (2014) who maintained that a knowledge that will create, transform and facilitate attitudinal change in organisation must be used. The study is in support of the findings of Islam, et al (2015) and Islam et al (2017) who found a strong relationship between knowledge use and service innovation of librarians. Therefore, knowledge use can be said to be a catalyst in bringing to bear innovation among librarians in Nigeria.

4.6.16 Relationship between knowledge creation and sharing by librarians in federal universities in Nigeria

A test of relationship between knowledge creation and knowledge sharing showed that knowledge sharing had a positive influence on knowledge creation by librarians in federal

universities in Nigeria r = 0.516 at 0.000 level of significance. The finding is in line with the position of Social Exchange Theory by Homan (1958) which was later modified by Blau (1964) that knowledge sharing is an enablers of knowledge creation in organization. They theory explained the emergence of dyadic relationships by means of exchange mechanisms and what the outcome of interpersonal relationship will be.

The finding upheld the positions of Nonaka and Takuechi (1995), Rane (2002) and Barhachary and Chaudhury (2004) on the process of knowledge conversion. They maintained that knowledge creation revolves round the activities of knowledge conversion. The researchers found that the process of conversion involves creation of tacit knowledge through informal sharing, moving from tacit knowledge to explicit, and using explicit knowledge to create new tacit knowledge through thinking and sharing. Islam et al (2017) also established an indirect effect of knowledge creation and sharing among librarians across Asia, United States of America (USA) and Japan.

The result is also in consonance with the findings of Sauchez et al (2013) who found knowledge sharing as a means through which employees can contribute to knowledge creation, application, innovation and competitive advantage of an organisation. Corroborating the finding of this study, Jia et al (2012) on application of social Exchange theory (SET) in library, especially on how librarians create and share knowledge, emphasised the humanistic mode among librarians i.e. a one to one person method of sharing and creation of knowledge. The study also confirmed the position of Anna and Puspitasari (2013) that adoption of knowledge sharing in academic libraries enhances knowledge creation.

4.6.17 Relationship between knowledge sharing and knowledge use by librarians in federal universities in Nigeria

The study revealed that there was a positive significant relationship between knowledge sharing and knowledge use by librarians in federal universities in Nigeria r = 0.628 at 0.000 level of significance. This implied that as the level of knowledge sharing increases among librarians the level of application of knowledge shared will also increases. The result is in agreement with the finding of Okonedo and Popoola (2012) who claimed that significant relationship exist between knowledge sharing and knowledge use among librarians in the public universities, in South-west, Nigeria. This study found channel through which librarians shared their knowledge to include: formal and informal meetings, workshops, seminars, mentoring, conferences and

social medias like facebook, twitter, YouTube, etc. It should be noted that when knowledge are shared among professionals, it facilitate it use. This is because the correct deployment of actionable information in any organization will determine its use.

4.6.18 Relationship between knowledge creation and knowledge use by the librarians

The study showed that there was a positive significant relationship between knowledge creation and knowledge use by the librarians in federal universities in Nigeria r= 0.519 at 0.000 level of significance. The implication of this is that only the created knowledge either at the individual level or at the organisational level that can be used. Knowledge creation therefore positively associated with the knowledge use by the librarians. The finding corroborated the finding of Uriate (2008) in Indonesia, who affirmed that the survival of any organisation is largely dependent on how much new and advanced knowledge it can create and use in order to produce a more attractive products or services.

Suorsa and Huotari (2014) earlier claimed that knowledge sharing is a link between knowledge creation and use. It should be noted that the interaction between knowledge creation and use will enable the creation of more knowledge and enhances the correct application of such knowledge. Omotayo (2015) in Nigeria stated that knowledge are being created on daily basis at work or in social setting while Sanchez (2013) in Brazil found the translation of tacit knowledge into explicit facilitate the use of knowledge. In line with the finding of the study, Hislop (2013) stated that the desired benefit of managing knowledge in organisation cannot be achieved without knowledge created being effectively used within the organisation.

4.6.19 Prediction of knowledge creation, sharing and use on creativity of librarians in federal universities in Nigeria.

The study affirmed that knowledge creation, sharing and use jointly and significantly predict creativity of librarians in federal universities, Nigeria. The result revealed that there was a significant joint effect among the independent variables: knowledge creation, knowledge sharing and Knowledge use as predictors of creativity among the librarians in the federal universities. This means that a good interaction exist between the independent variables and the dependent variable.

The interaction between the independents and dependent enhances one another. Kapu and Basturk (2013) opined that creativity and creative services are seen as a very important element of all management activities. Altay and Tekin (2013) stress that knowledge creation and creativity enable libraries in Istanbul.Gong et al (2012) maintained that high degree of knowledge sharing supports individual employee learning process and enhances individual's creative skills. Amabile (1988) studied a componential model of knowledge sharing and creativity. He suggested that domain knowledge is one of the most crucial components of creativity. Sosa (2011) believed that an individual employee is more likely to generate novel and creative ideas if he can access diverse knowledge and information by interacting with people who have varieties of expertise. Islam et al (2015) stated that academic libraries with better developed knowledge use practices are likely to offer more new services.

4.6.20 Prediction of knowledge creation, sharing and use on innovation of librarians in federal universities in Nigeria

The study indicated that knowledge creation, sharing and use were jointly and significantly predict innovation of the librarians in federal universities in Nigeria. The result affirmed that there was a significant joint effect among the independent variables: knowledge creation, knowledge sharing and knowledge use as predictors of the dependent variable: Innovation of the librarians in the federal universities in Nigeria. This implies that relationship exist between knowledge creation, knowledge sharing and knowledge use in predicting innovation of the respondents and that mutual interactions exists among the variables. The study affirmed the position of Chen (2014) who found a significant and positive correlation between knowledge sharing climate and organisational innovation. The implication of this is that knowledge sharing climate is a key determinant of the success of organisational innovation.

Yesil and Dereli (2013) submitted that knowledge sharing is an invaluable source of organisational innovation. Husseinet al (2016) argued that promoting the culture of knowledge sharing in organisation is likely to lead to continuous innovative performance. Islam et al (2015) pointed out that academic libraries with more capability of knowledge creation are likely to offer more innovative services to their user communities. Atata et al (2014) claimed that the higher the aim of the creative and innovative activities and its attainment, the greater will be the satisfaction of the library clientele. Okonedo and Popoola (2012) claimed that knowledge use by librarians in South-west, Nigeria improved their statistical data ability.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusion and recommendations obtained from the analysis of the research findings. It also captures the contribution to knowledge, limitations of the study and suggestions for further study.

5.2 Summary of the findings

The study investigated knowledge creation, sharing and use as predictors of creativity and innovation of librarians in federal universities in Nigeria. From theanalysis of the data, research questions answered and thehypotheses tested, the following are the summarised findings of the study:

1. The level of knowledge creation by the librarians in federal universities in Nigerian is high.

2. The types of knowledge created by the librarians in federal universities in Nigeria include bibliographic compilation, publishing in high impact journal, writing conference papers and producing technical reports.
3. There was a high level of knowledge sharing among the librarians in federal universities in Nigeria.

4. The channels through which the librarians in federal universities in Nigeria shared knowledge include face-to-face interaction, the use of mobile phone, e-mail formal/informal meeting, seminars, workshops and symposia, mentoring, peer assistance, WhatsApp, Google scholar, notice board, library bulletin and Nigerian Library Association online forum.

5. There was a high level of knowledge use by the librarians in federal universities in Nigeria.

6. There was a high level of creativity by the librarians in federal universities in Nigeria.

7. There was a high level of innovation by the librarians in federal universities in Nigeria.
8. The innovative techniques used in marketing library products and services by the librarians in federal universities in Nigeria include proper dressing by the librarians, organising user education, provision of electronic access to information, requesting for contribution from users while making acquisitions, sending personal letters to users through e-mail and text messages and sending out brochures or flyers.
9. Knowledge creation, sharing and use have relative contribution to the prediction of creativity of librarians in federal universities in Nigeria.
10. Knowledge creation, sharing and use have relative contribution to the prediction of innovation of librarians in federal universities in Nigeria.
11. Knowledge creation is positively associated with the creativity of librarians in federal universities in Nigeria.
12. Knowledge creation is positively associated with the innovation of librarians in federal universities in Nigeria.
13. There was a positive significant relationship between knowledge sharing and creativity of librarians in federal universities in Nigeria.
14. There was a positive significant relationship between knowledge sharing and innovation of librarians in federal universities in Nigeria.
15. Knowledge use is positively associated with the creativity of librarians in federal universities in Nigeria.
16. Knowledge use is positively associated with the innovation of librarians in federal universities in Nigeria.
17. There was a positive significant relationship between knowledge creation and sharing by librarians in federal universities in Nigeria.
18. There was a positive significant relationship between knowledge sharing and use by librarians in federal universities in Nigeria.
19. A positive significant relationship was established between knowledge creation and use by librarians in federal universities in Nigeria
20. Knowledge creation, sharing and use jointly and significantly predicted creativity of librarians in federal universities in Nigeria.

21. Knowledge creation, sharing and use jointly and significantly predicted innovation of librarians in federal universities in Nigeria.

5.3 Conclusion

Knowledge creation, sharing and use are individually and collectively associated with the creativity and innovation of the librarians in federal universities in Nigeria. Contrary to the assumptions that librarians only managed knowledge of others, the study established that librarians create both tacit and explicit knowledge. The influence of knowledge creation on creativity and innovation was also established in the study. It was also noted that sections where librarians work in the library is not a barrier to how they create, share and use knowledge.

A good knowledge sharing behaviour exists among the librarians in federal universities in Nigeria. As it was in other organisations, the level of knowledge sharing among the librarians is high. It was also established that level of knowledge use among the librarians in federal universities in Nigeria is high. This should be sustained by the library administrators in Nigeria. To sustain the result of the findings on knowledge use among the librarians, Knowledge sharing hour should be established in the university libraries among academic librarians.Knowledge sharing adopted by the librarians in the university libraries affect positively the creativity and innovation of librarians. Likewise the knowledge use of librarians also had positive influence on creativity and innovation of librarians in federal Universities in Nigeria. Therefore, knowledge creation, sharing and use are significant predictors of creativity and innovation by librarians in federal universities in Nigeria.

5.4 Recommendations

Based on the findings of the study, the following recommendations are hereby made:

1. The level of knowledge creation by librarians is high; therefore incentives and rewards should be given to librarians who created knowledge in each university on yearly basis. This will encourage the practicing librarians to further develop the culture of creating more knowledge.
2. The librarians in the federal universities in Nigeria should put more effort in the way they create knowledge.
3. The finding of the study revealed that, there was no formal knowledge sharing among the librarians. Therefore, knowledge sharing hour should be intergrated into the practice

of librarianship where both tacit and explicit knowledge of the librarians can be shared on topics of interest relating to professional practice. When this is strictly adhered to, it will bridge the gap in knowledge among librarians.

4. Librarians should increase their knowledge in the use ICT tools and social media for knowledge sharing.
5. The finding of the study shows that the level of knowledge use by the librarians is high. Therefore, this should be sustained.
6. There is a high level of creativity and innovation by the librarians in federal universities in Nigeria. Therefore, the Library Management of universities should increase the level of advocacy for fund from corporate organisations and philanthropists through which creative and innovative expertise by the librarians can be rewarded handsomely to encourage further creative and innovative performance among librarians in Nigeria.
7. Knowledge management should henceforth be infused into the curriculum of librarianship as compulsory course of study in tertiary institutions to expose the librarians to the value of knowledge management application to library practice from the grass root.
8. The result of the study has given a hint for university libraries, University Librarians and Library managers to provide a conducive working atmosphere where librarians can better create, share and use their knowledge effectively.

5.5 Contributions of the study to knowledge

This study has contributed to knowledge in the following areas:

1. The conceptual model developed for this study has never been used by any researcher to underpin the variables of the study as far as the knowledge of the researcher is concerned. This is what makes the study to be unique and it is a great contribution to knowledge in the field of knowledge management and organisational performance.
2. The instrument used to elicit data in the study is another giant stride the study has contributed to knowledge. Some scale was developed by the researcher. These include Types of knowledge created by librrians and channel of knowledge shring among

librarians. This without doubt has provided research instrument for researchers who might want to further research in this direction.

3. Knowledge creation, knowledge sharing and knowledge use are critical ingredients for enhancing creativity of librarians in federal universities in Nigeria.
4. Knowledge creation, knowledge sharing and knowledge use are critical factors in improving innovation of librarians in federal universities in Nigeria.
5. Contrary to the insinuation that librarians are knowledge managers who only manages the explicit knowledge of their collections, this study has provided empirical evidence that librarians do not only manages the explicit knowledge in their collection, but also create knowledge in the form of library products and services to advance their professional practice.
6. The study has produced useful information to both the University and Library administrators on the need to effectively manage librarians' knowledge and also to create conducive atmosphere for knowledge sharing to enhance theirs creative and innovative capabilities.

5.6 Suggestions for further research

The study cannot claim to be exhaustive as it was limited to librarians in the federal universities in Nigeria. The following areas are suggested for further study:

1. Effect of personal factors on creativity and innovation of librarians in polytechnic libraries.
2. Knowledge creation and use as facilitators of innovation among librarians in private universities
3. Knowledge mapping and knowledge transfer on innovation of librarians in private universities

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APPENDICES

APPENDIX I

UNIVERSITY OF IBADAN

DEPARTMENT OF LIBRARY, ARCHIVALAND INFORMATION STUDIES

QUESTIONNAIRE FOR LIBRARIANS

Dear Sir/Madam,

Dear Respondent,
I am a Doctoral Student in the Department of Library, Archival and Information Studies, University of Ibadan conducting a study in partial fulfillment of my doctoral Programme.I hereby request your support to objectively fill the questionnaire. Your responses will be used purely for research purpose and will be treated with utmost confidentiality.

Thanks for your cooperation, God bless you.

Yours sincerely,

T. A. Ogunmodede

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Section A

Demographic variables of the respondent

1. Name of University …….
2. Name of Library …….
3. Year of Establishment ……..
4. Job Status: Assistant Librarian [ ] Librarian II [ ] Librarian I [ ] Senior Librarian [ ] Principal Librarian [ ] Deputy Librarian [ ] University Librarian [ ]
5. Gender: Male [ ] Female [ ]
6. Marital Status: Single [ ] Married [ ] Divorced [ ] Separated [ ] Widowed [ ]
7. Age in complete years ……
8. Highest academic qualification
   a. Ph.D. [ ] b. M. Phil [ ] c. Master [ ] d. Bachelors [ ]
9. How long have you been working in this Library? …….

10. Section: Management Unit [ ] Cataloguing / Classification Unit [ ] Acquisition Unit [ ] Circulation Unit [ ] Reference Unit [ ] Virtual Unit [ ] Reprographic / Conservation / Preservation Unit [ ] IT and Computer Section Unit [ ] Serials Unit [ ] Audio-visual Unit [ ]
11. Year of work experience …….

Section B

Knowledge creation by librarians scale

Please tick the column that best express your opinion with a √ where SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree

S/N	Knowledge creation in work place:	SA	A	D	SD
1	I generate new ideas to improve business operations and methods				
2	I am intrumental to creating databases and databanks for library users				
3	Often times, I introduce newstrategies for solving problems				
4	Through intuition, I introduce new services to meet users' needs				
5	In work group, we regularly compile bibliographies on various subjects of interest to users				
6	I identify new search engines for searching information on the internet				
7	Occasionally, I introduce knowledge packaging techniques for formalising workers' experiences, new ideas, information, insight, intuition, etc.				
8	I usually reconfigure existing information and documented expertise, experiences, insight and intuition through sorting, adding and recategorising for my library				
9	I create new techniques leading to the production of new information products for internal use				
10	My suggestions at meetings assist the management to formulate new business strategies				
11	I rarely give expert advice leading to better planning and decision making				
12	I discovered new approach for dealing with computer virus and data loss in my library				
13	Ideas from colleagues has helped me to generate new ideas				

Types of knowledge created by librarians

As a librarian, kindly tick the knowledge you have created since you started your professional practice. Please tick the column that best express your opinion with a √ where SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree

S/N	Types of knowledge created	SA	A	D	SD
1	Library software development				
2	Bibliographic compilation				
3	Online chatting				
4	Digital reference service				
5	Web page design				
6	Translation service				
7	Cataloguing African and Nigerian publications in online cataloguing				
8	Creation of password for information security				
9	Developing formula for budget preparation				
10	Pricing new information service				

11	Building cost models for information service delivery				
12	Designing course curricula				
13	Publishing in high impact journal				
14	Publishing textbook in LIS field				
15	Writing chapter(s) in book in LIS field				
17	Producing technical reports				
18	Writing conference papers				
19	Producing monographs				
20	Preparing library budget				
21	Current listing of literature				

Section C

Knowledge sharing among librarians scale

Please tick the column that best express your opinion with a √ where SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree

S/N	Items measuring knowledge sharing behaviours	SA	A	D	SD
1	I share working skills got from document on job related matter with my colleagues				
2	I think that my authority would be eroded, if I share my experience with my colleagues in the profession				
3	I think librarians should have access to experience of one another in this library				
4	I do not think I have to share my insight with colleagues				
5	I do not think I have time to share my expertise with my colleagues				
6	I don't think I will be fulfilled if I don't share my experience with my colleagues				
7	I am willing to share my work skills, if it will be used for my promotion				
8	I am willing to share expertise, if I will be acknowledged and appreciated				
9	I am willing to share knowledge, if I can obtain a sense of achievement				
10	I don't share intuitions becuase it is hard to convince colleagues of the value of knowledge sharing				
11	I share knowledge about new trend in librarianship with my colleagues				
12	I share my experience about cataloguing and classification with colleagues				
13	I share knowledge outside library matters with my colleagues				
14	My colleagues share new library experience with me				
15	I share new library experience with my colleagues				
16	I share new work skills I learnt with my colleagues at conferences.				

17	It is not easy to share knowledge with my colleagues				
18	My colleagues share new work skills they learn at conferences with me				
19	I share actionable information with my colleagues during staff meeting				
20	I share useful ideas with my colleagues throughseminars and workshops				
21	I share expertise with my colleagues through community of practice				
22	I share lessons learnt with my colleagues through interpersonal interaction				
23	I share experience with my colleagues through orientation and induction of new staff				
24	I share experience with my colleagues during brainstorming session				
25	I share insight with my colleagues whenever I am asked to				
26	I share experience with colleagues whenever I notice the need for it				
27	I share experience on library automation with my colleagues				
28	I share insight about readers services with colleagues				
29	I share experience about serials management with colleagues				
30	I share new ideas about reference services with colleagues				
31	I share ideas outside librarianship with my colleagues				
32	I share skills about collection development with colleagues				

Channels of knowledge sharing

Please tick the column that best describes the methods through which you share knowledge with your colleagues.

S/N	I share knowledge through:	SA	A	D	SD
1	Face-to-face interaction				
2	E-mail				
3	The use of mobile phone				
4	The Library Portal				
5	Memoranda				
6	Notice board				
7	Seminars, workshops and symposia				
8	Library news bulleting				
9	Peer assistance				
10	Mentoring				
11	Formal / informal meetings				
12	Story telling				
13	After action review				
14	Coaching				
15	Knowledge fair				
16	Networking				
17	Worldcafe				
18	Nigerian Library Association online forum				
19	Internet telephone				

20	Video conferencing				
21	Teleconferencing				
22	Knowledge repositories				
23	Twitter				
24	Yahoo messenger				
25	WhatsApp				
26	Research gate				
27	Instagram				
28	Twoo				
29	2go				
30	RSS feed				
31	Facebook				
32	Blog				
33	Skype				
34	Pinterest				
35	You Tube				
36	LinkedIn				
37	Google scholar				

Section D

Knowledge use scale for librarians

Do you think utilising knowledge has contributed to your research activities in form of creativity and innovation? Please tick the column that best express your opinion with a √. Where SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree.

S/N	**Items on knowledge use behaviour of librarians**	SA	A	D	SD
1	Actionable information I learnt from workshop/seminars and symposia attendance has really helped me to publish more scholarly papers				
2	I apply new ideas gained from my colleagues to enhance my work performance				
3	The insight obtained from the library document is used to generated new research skills				
4	Knowledge obtained from my colleagues has better my information search skills				
5	I regularly use documented knowledge in solving work problems than undocumented knowledge				
6	I used insight got during discussion group, workshops and conferences to improve my understanding of statistical data analysis				
7	My research output in referred journals has increasd as a result of the application of experience I gained from my colleagues				
8	Effectual use of electronic information resources has helped me to present workshops and seminars/ papers in a better way				
9	Actionable information obtained from community of practice in my place of work is used for writing research proposals				

10	Actionable information gained from my colleagues has helped me to discharge my duties more efficiently				
11	Cataloguing and classification of information materials has become much easier for me as a result of knowledge acquired through my colleagues				
12	I use experience acquired from colleagues to provide better reference services				
13	My expertise on collection development has improved tremendously as a result of knowledge gained from colleagues				
14	I use insight acquired from colleagues to provide better service on serial management				
15	I use the experience of others in finding solution to problems I encounter on the job				

Section E

Creativity scale for librarians

The aim of this section is to discover if an employee believes his/herself to be creative, acts creatively in his/her work and what he/she believes to be the issues which affect individual creativity. A four likert scale is used to scale responses in which SA = Strongly Agree, A= Agree SD= Disagree, and SD = Strongly Disagree

S/N	Items measuring creativity behaviours of librarians	SA	A	D	SD
1	I am capable to achieve most of my personal goals at work				
2	I am not afraid when facing challenges at work				
3	I am confident that I can perform creatively on different tasks at work				
4	I display originality at my work				
5	I akin to taking risks at work				
6	My colleagues consider me as a creative employee				
7	Creativity at job is important to me				
8	I am not easily inclined by other				
9	I have the ability to see how to take advantage of a certain situation				
10	I am versatile, I can easily come up with innovative solution no matter the work field				
11	My personality traits make me more creative in the workplace				
12	I am attracted in my work and I find it fulfilling				
13	My previous experience makes me more creative in the workplace				
14	The opinion of work colleagues has a positive influence on my creative ability				

15	My personal contacts has enhanced the level of creativity in the workplace				
16	I am convinced and dedicated in working with my organisation				
17	I am content with my salary/ pay package at work				
18	Time demands inhibit my personal creativity at work				
19	I'm sure I can develop creative ideas to solve problems and implement solutions				
20	I hardly ever ignore good ideas				
21	I constantly see problems, complaints, and bottlenecks as opportunities rather than as issues				
22	I gaze for things in my environments to motivate me to find new interpretations of problems				
23	Routine doesn't hinder my creativity				
24	I evade following events strictly by the rules				
25	I desire to advance problems in reasonable way				
26	I believed that something would work better in the discharge of my duties				
27	I would like to work with others to maximise innovations				

Section F

Innovation scale for librarians

This section aims to discover innovation of librarians. It will be measured on a four likert rating scale in which SA = Strongly Agree, A= Agree SD= Disagree, and SD = Strongly Disagree. ? Please tick the column that best express your opinion with a √.

S/N	Items measuring innovative behaviour of librarians	SA	A	D	SD
1	I spend all my time on implementing new services				
2	Implementing new skills is perceived as too risky for me in the library and is resisted				
3	Other priorities prevent me from focusing my attention on implementing new ideas				
4	Coordination of tasks and people is taking too much of my time				
5	Implementing new proposals are welcome in my library				
6	Library management promotes implementing new ideas				
7	I enjoyed trying new ideas				
8	I look for new ways to do things				
9	I am usually careful about accepting new ideas				
10	I have skills and expertise to create new product and services				
11	I constantly inject new services to my work schedule each day				

12	I regularly invent methods for solving a problem when an answer is not obvious				
13	The creation of new product/services in my library is based on the combined effort of librarians				
14	I nearly made new product/services although through some kinds of support				
15	I am apprehensive of new inventions and new ways of thinking				
16	I spent more time on daily basis thinking about how new services can be put to use in my library				
17	I seldom trust new ideas until I can see the vast majority of people accept them				
18	I know I am an important member of my peer group				
19	I judged myself to be creative and original in my thinking and actions				
20	I am conscious that I am habitually one of the last people in my work group to accept something new				
21	I am an inventive kind of person				
22	I enjoyed taking part in the leadership responsibilities in my group				
23	I am hesitant about adopting new ways of doing things until I people around me doing it				
24	I find it interesting to be original in my thoughts and actions				
25	I tend to consider the old way of doing things as the best				
26	I am challenged by ambiguities and unclear problems				
27	I must see other people using new skills before I will consider them				
28	I am interested in new ideas				
29	I am challenged by unrequited questions				
30	I frequently find myself cynical of new ideas				
	Techniques in marketing library products and services				
1	Display and exhibitions of new arrivals.				
2	Increase interpersonal relationship between staff and users.				
3	Sending out brochure or flyers				
4	Provision of suggestion boxes.				
5	Having delegate in institutional functions.				
6	Requestfor users contribution when making acquisitions.				
7	Provision of digital access to information.				
8	One on one discussion with the users				
9	Organising user education				
10	Advertising in print and electronic media.				
11	Use of leaflet and posters.				
12	Creating a library web page				
13	Organising library week				
14	Sending personal letters to users through e-mail and text messages.				
15	Librarians should be properly dressed				

Appendix II

Table showing the test of norm on knowledge creation by librarians in federal universities in Nigeria

Grand mean = 38.64, Maximum score = 52, Interval = $\frac{52}{3} = 17.3$, Classification = High, Moderate, Low

Test of Norm Table

Interval	Range	Level	Frequency	Percentage
1-17		Poor	4	0.8
18-34		Fair	97	18.7
35-52	38.64	Good	417	80.5

Table showing the test of norm on knowledge sharing behaviour by librarians in federal universities in Nigeria

Grand mean = 98.47, Maximum score = 128, Interval = $\frac{128}{3} = 42.67$, Classification = High, Moderate, Low

Interval	Range	Level	Frequency	Percentage
1-43		Poor	2	0.4
44-86		Fair	37	7.1
87-128	98.47	Good	479	92.5

Table showing the test of norm on knowledge use by librarians in federal universities in Nigeria

Grand mean = 48.93, Maximum score = 60, Interval = $\frac{60}{3} = 20$, Classification = High, Moderate, Low

Interval	Range	Level	Frequency	Percentage
1-20		Low	3	0.6
21-40		Moderate	39	7.5
41-60	48.93	High	476	91.9

Table showing the test of norm on creativity by librarians in federal universities in Nigeria

Grand mean = 85.45, Maximum score = 108, Interval $= \frac{108}{3} = 36$, Classification = High, Moderate, Low

Interval	Range	Level	Frequency	Percentage
1-36		Low	3	0.6
37-72		Moderate	22	4.2
73-108	85.45	High	493	95.2

Table showing the test of norm on innovation by librarians in federal universities in Nigeria

Grand mean = 86.60, Maximum score = 120, Interval = $\frac{120}{3} = 40$, Classification = High, Moderate, Low

Interval	Range	Level	Frequency	Percentage
1-40		Low	3	6
41-80		Moderate	155	29.9
81-120	86.60	High	360	69.5

APPENDX III (a)

POST HOC ANALYSIS

Pairwise multiple comparisons of knowledge creation by universities

Name of University (I)	Name of University (J)	Mean difference	Std. Error	P-value
University of Calabar	Federal University of Owerri	5.16176*	2.02051	0.011
	ObafemiAwolowo University	5.58333*	1.99311	0.005
	Nigerian Police Academy	8.0333*	2.77693	0.004
	Federal University Lokoja	5.41667*	2.417	0.025
	University of Jos	5.83091*	2.27203	0.010
	Bayero University Kano	7.11364*	2.27203	0.002
	University of Uyo	4.27174*	1.88841	0.024
	University of Lagos	5.03579*	2.12298	0.018
	University of Nigeria Nsukka	3.77941*	1.75863	0.032
	AbubakarTafawaBalewa University	4.41667*	2.0848	0.035
	Ahmadu Bello University	4.94355*	1.78565	0.006
MichealOkpara University of Agriculture	Nigerian Police Academy	6.2222*	3.0573	0.042
	Bayero University Kano	5.25253*	2.60727	0.045
Federal University Ndufu Alike	Federal University of Technology, Owerri	6.66176*	3.22362	0.039
	ObafemiAwolowo University	7.08333*	3.20652	0.028
	Nigeria Police Academy	9.58333*	3.74441	0.011
	Federal University Lokoja	6.91667*	3.48585	0.048
	University of Jos	7.34091*	3.38694	0.031
	Bayero University Kano	8.61364*	3.38694	0.011
	University of Lagos	6.53571*	3.28875	0.047
	Ahmadu Bello University	6.44355*	3.08185	0.037
Federal University of Technology, Owerri	University of Calabar	-5.16176*	2.02051	0.011
	Federal University Ndufu Alike	-6.66176*	3.22362	0.039
	Federal University of Petroleum, Delta	-5.98319*	2.60508	0.022
	University of Benin	-6.66176*	2.18712	0.002
	Federal University, Oye Ekiti	-5.81176*	2.95114	0.049
	University of Benin	-5.98319*	2.60508	0.022
	Federal University Dutsina-ma, Kastina	-7.71176*	2.31178	0.001
Federal University of Petroleum, Delta	Federal University of Technology, Owerri	5.98319*	2.60508	0.022
	ObafemiAwolowo University	6.40476*	2.58389	0.014
	Nigeria Police Academy	8.90476*	3.22727	0.006
	Federal University Lokoja	6.23810*	2.92333	0.033

	University of Jos	6.66234*	2.80466	0.018
	Bayero University Kano	7.93506*	2.80466	0.005
	University of Uyo	5.09317*	2.50401	0.043
	AbubakarTafawaBalewa University	5.23810*	2.65525	0.049
	Ahmadu Bello University	5.76498*	2.42745	0.018
Federal University Dutse	University of Benin	-5.17308*	2.32218	0.026
	Federal UniversityDutsina-ma, Kastina	-6.22308*	2.43995	0.011
Federal University of Gashua, Yobe	Nigeria Police Academy	6.76190*	3.22727	0.037
	BayeroUniverstiy Kano	5.79221*	2.80466	0.039
University of Ilorin	University of Benin	-4.56818*	2.08174	0.029
	Federal University Dutsina-ma, Kastina	-5.61818*	2.21234	0.011
Federal University Kashare	University of Benin	-7.25000*	3.08772	0.019
	Federal University Dutsina-ma, Kastina	-8.30000*	3.17723	0.009
ObafemiAwolowo University	University of Calabar	-5.58333*	1.99311	0.005
	Federal University, Ndufu Alike	-7.08333*	3.20652	0.028
	Federal University of Petroleum	-6.40476*	2.58389	0.014
	University of Benin	-7.08333*	2.16183	0.001
	Nigeria Defense Academy	-6.16667*	2.36817	0.010
	Federal University Oye Ekiti	-6.23333*	2.93245	0.034
	University of Benin	-6.40476*	2.58389	0.014
	University of Agriculture Markurdi	-4.58333*	2.16183	0.035
	AKWA	-4.26190*	2.06711	0.040
University of Benin	Federal University of Technology, Owerri	6.66176*	2.18712	0.002
	University of Ilorin	4.56818*	2.08174	0.029
	ObafemiAwolowo University	7.08333*	2.16183	0.001
	Nigeria Police Academy	9.58333*	2.90041	0.001
	Usman Dan Fodio University	4.42647*	2.18712	0.044
	Federal University of Technology Minna	5.37500*	2.21522	0.016
	Federal University Lokoja	6.91667*	2.55792	0.007
	Otueke University Bayelsa	5.13889*	2.55792	0.045
	University of Jos	7.34091*	2.42139	0.003
	University of Ibadan	4.33000*	2.03718	0.034
	Bayero University, Kano	8.61364*	2.42139	0.000
	University of Uyo	5.77174*	2.06570	0.005
	Federal University of Technology, Akure	6.37500*	2.64770	0.016

	AbubakarTafawaBalewa University	5.91667*	2.24664	0.009
	Ahmadu Bello University	6.44355*	1.97220	0.001
	University of Abuja	4.91667*	2.36817	0.038
	National Open University of Nigeria	5.19118*	2.18712	0.018
Nigeria Defense Academy	Federal University of Technology, Owerri	5.74510*	2.39128	0.017
	ObafemiAwolowo University	6.16667*	2.36817	0.010
	Nigeria Police Academy	8.66667*	3.05730	0.005
	Federal University, Lokoja	6.0000*	2.73453	0.029
	Bayero University Kano	7.69697*	2.60727	0.003
	University of Uyo	4.85507*	2.28075	0.034
	University of Lagos	5.61905*	2.47838	0.024
	University of Nigeria, Nsukka	4.36275*	2.17451	0.045
	AbubakarTafawaBalewa University	5.0000*	2.44584	0.041
	Ahmadu Bello University	5.52688*	2.19643	0.012
Nigeria Police Academy	University of Calabar	-8.08333*	2.77693	0.004
	MichealOkpara University of Agriculture	-6.22222*	3.05730	0.042
	Federal University Ndufu Alike	-9.58333*	3.74441	0.011
	Federal University of Petroleum, Delta	-8.90476*	3.22727	0.006
	Federal University, GashuaYobe	-6.76190*	3.22727	0.037
	University of Benin	-9.58333*	2.90041	0.001
	Federal University Oye Ekiti	-8.73333*	3.51256	0.013
	Federal University of Agriculture, Abeokuta	-5.92157*	2.75456	0.032
	University of Benin	-8.90476*	3.22727	0.006
	University of Ibadan	-5.25333*	2.63708	0.047
	University of Port Harcourt	-6.02564*	2.86298	0.036
	Federal University Dutsina-ma, Kastina	-10.63333*	2.99553	0.000
	University of Agriculture Markurdi	-7.08333*	2.90041	0.015
	AKWA	-6.76190*	2.83051	0.017
Usman Dan Fodio University	University of Benin	-4.42647*	2.18712	0.044
Federal University of Technology, Minna	University of Benin	-5.37500*	2.21522	0.016
	Federal University Dutsina-ma, Kastina	-6.42500*	2.33838	0.006
Federal University	Federal University of	-6.23810*	2.92333	0.033

Lokoja	Petroleum, Delta			
	University of Benin	-6.91667*	2.55792	0.007
	Nigeria Defense Academy	-6.0000*	2.73453	0.029
	University of Benin	-6.23810*	2.92333	0.033
Federal University Maduguri	University of Benin	-4.69444*	2.16183	0.030
	Federal University, Dustina-ma, Kastina	-5.74444*	2.28787	0.012
Federal University Oye Ekiti	Federal University of Technology, Owerri	5.81176*	2.95114	0.049
	ObafemiAwolowo University	6.23333*	2.93245	0.034
	Nigeria Police Academy	8.73333*	3.51256	0.013
	University of Jos	6.49091*	3.12872	0.039
	Ahmadu Bello University	5.59355*	2.79559	0.046
Federal University of Agriculture, Abeokuta	Nigeria Police Academy	5.92157*	2.75456	0.032
	Federal University, Dustina-ma, Kastina	-4.71176*	2.31178	0.042
	Bayero University Kano	4.95187*	2.24464	0.028
University of Benin Kebbi	Federal University of Technology Owerri	5.98319*	2.60508	0.022
	Nigeria Police Academy	8.90476*	3.22727	0.006
	University of Jos	6.66234*	2.80466	0.018
	Bayero University Kano	7.93506*	2.80466	0.005
	University of Lagos	5.85714*	2.68525	0.030
	AbubakarTafawaBalewa	5.23810*	2.65525	0.049
	Ahmadu Bello University	5.76498*	2.42745	0.018
Otueke University Bayelsa	University of Benin	-5.13889*	2.55792	0.045
	Federal University Dustina-ma Kastina	-6.18889*	2.66529	0.021
University of Jos	University of Calabar	-5.84091*	2.27203	0.010
	Federal University Ndufu Alike	-7.34091*	3.38694	0.031
	Federal University of Petroleum, Delta	-6.66234*	2.80466	0.018
	University of Benin	-7.34091*	2.42139	0.003
	Nigeria Defense Academy	-6.42424*	2.60727	0.014
	Federal University Oye Ekiti	-6.49091*	3.12872	0.039
	University of Benin	-6.66234*	2.80466	0.018
	Federal University Dutsina-ma, Kastina	-8.39091*	2.53456	0.001
	University of Agriculture Makurdi	-4.84091*	2.42139	0.046
University of Ibadan	University of Benin	-4.33000*	2.03718	0.034
	Nigeria Police Academy	5.25333*	2.63708	0.047
	Federal University Dutsina-ma, Kastina	-5.38000*	2.17046	0.014

	Bayero University Kano	4.28364*	2.09881	0.042
University of Port Harcourt	Nigeria Police Academy	6.02564*	2.86298	0.036
	Bayero University Kano	5.05594*	2.37644	0.034
Federal University, Dustina-ma Kastina	Federal University of Technology, Owerri	7.71176*	2.31178	0.001
	Federal University Dutse	6.22308*	2.43995	0.011
	University of Ilorin	5.61818*	2.21234	0.011
	Federal University Kashare	8.30000*	3.17723	0.009
	ObafemiAwolowo University	8.13333*	2.28787	0.000
	Nigeria Police Academy	10.6333*	2.99553	0.000
	Usman Dan Fodio University	5.47647*	2.31178	0.018
	Federal University of Technology, Minna	6.42500*	2.33838	0.006
	Federal University Maduguri	5.74444*	2.28787	0.012
	Federal University of Agriculture Abeokuta	4.71176*	2.31178	0.042
	University of Jos	8.39091	2.53456	0.001
	University of Ibadan	5.38000*	2.17046	0.014
	Bayero University Kano	9.66364*	2.53456	0.000
	University of Uyo	6.82174*	2.19726	0.002
	University of Lagos	7.58571*	2.40176	0.002
	Federal University of Technology Akure	7.42500*	2.75157	0.007
	University of Nigeria, Nsukka	6.32941*	2.08677	0.003
	AbubakarTafawaBalewa University	6.96667*	2.36817	0.003
	Ahmadu Bello University	7.49355*	2.10960	0.000
	University of Abuja	5.96667*	2.48376	0.017
	National Open University	6.24118*	2.31178	0.007
University of Agriculture Markurdi	ObafemiAwolowo University	4.58333*	2.16183	0.035
	Nigeria Police Academy	7.08333*	2.90041	0.015
	University of Jos	4.84091*	2.42139	0.046
	Bayero University Kano	6.11364*	2.42139	0.012
	Ahmadu Bello University	3.94355*	1.97220	0.046
Bayero University Kano	University of Calabar	-7.11364*	2.27203	0.002
	Federal University of Petroleum Delta	-7.93506*	2.80466	0.005
	Federal University GashuaYobe	-5.79221*	2.80466	0.039
	University of Benin	-8.61364*	2.42139	0.000
	Federal University Oye Ekiti	-7.76364*	3.12872	0.013
	Federal University of Agriculture Abeokuta	-4.95187*	2.24464	0.028
	University of Benin Kebbi	-7.93506*	2.80466	0.005
	University of Ibadan	-4.28364*	2.09881	0.042

	University of Port Harcourt	-5.05594*	2.37644	0.034
	Federal University Dutsina-ma Kastina	-9.66364*	2.53456	0.000
	University of Agriculture Markurdi	-6.11364*	2.42139	0.012
	AKWA	-5.79221*	2.33721	0.014
University of Uyo	University of Calabar	-4.27174*	1.88841	0.024
	Federal University of Petroleum Delta	-5.09317*	2.50401	0.043
	University of Benin	-5.77174*	2.06570	0.005
	Nigeria Defense Academy	-4.85507*	2.28075	0.034
	University of Benin Kebbi	-5.09317*	2.50401	0.043
University of Lagos	University of Calabar	-5.03571*	2.12288	0.018
	Federal University Ndufu Alike	-6.53571*	3.28875	0.047
	Federal University of Petroleum Delta	-5.85714*	2.68525	0.030
	University of Benin	-6.53571*	2.28203	0.004
	Federal University Dutsina-ma, Kastina	-7.58571*	2.40176	0.002
Federal University of Technology, Akure	University of Benin	-6.37500*	2.64770	0.016
	Federal University Dutsina-ma, Kastina	-7.42500*	2.75157	0.007
University of Nigeria Nsukka	University of Calabar	-3.77941*	1.75863	0.032
	University of Benin	-5.27941*	1.94777	0.007
	Nigeria Defense Academy	-4.36275*	2.17451	0.045
	Federal University Dutsina-ma, Kastina	-6.32941*	2.08677	0.003
AbubakarTafawaBalewa University	University of Calabar	-4.41667*	2.08480	0.035
	Federal University of Petroleum Delta	-5.23810*	2.65525	0.049
	University of Benin	-5.91667*	2.24664	0.009
	University of Benin Kebbi	-5.23810*	2.65525	0.049
	Federal University Dutsina-ma, Kastina	-6.96667*	2.36817	0.003
Ahmadu Bello University	University of Calabar	-4.94355*	1.78565	0.006
	Federal University Ndufu Alike	-6.44355*	3.08185	0.037
	University of Benin	-6.44355*	1.97220	0.001
	Nigeria Defense Academy	-5.52688*	2.19643	0.012
	Federal University Oye Ekiti	-5.59355*	2.79559	0.046
	University of Benin Kebbi	-5.76498*	2.42745	0.018
	Federal University Dutsina-ma, Kastina	-7.49355*	2.10960	0.000
	University of Agriculture	-3.94355*	1.97220	0.046

	Markurdi			
AKWA	Nigeria Police Academy	6.76190*	2.83051	0.017
	Bayero University Kano	5.79221*	2.33721	0.014
University of Abuja	University of Benin	-4.91667*	2.36817	0.038
	Federal University Dutsina-ma, Kastina	-5.96667*	2.48376	0.017
National Open University Nigeria	University of Benin	-5.19118*	2.18712	0.018
	Federal University Dutsina-ma, Kastina	-6.24118*	2.31178	0.007

* Sig. at .05 level

APPENDIX III (b)

POST HOC ANALYSIS

Pairwise multiple comparisons of knowledge sharing by universities

Name of University (I)	Name of University (J)	Mean difference	Std. Error	P-value
ModibboAdama University Yola	Federal University Lokoja	15.61111*	5.88303	0.008
University of Calabar	Federal University of Technology Owerri	9.80147*	3.88799	0.012
	ObafemiAwolowo University	9.45833*	3.83527	0.014
	University of Benin	10.20833*	4.26266	0.017
	Federal University of Technology Minna	12.0625*	3.94646	0.002
	Federal University Lokoja	18.73611*	4.65094	0.000
	Federal University of Agriculture Abeokuta	9.62500*	3.88799	0.014
	Otueke University Bayelsa	11.18056*	4.65094	0.017
	University of Ibadan	12.62500*	3.57367	0.000
	University of Uyo	8.53804*	3.63380	0.019
	University of Lagos	9.19643*	4.08497	0.025
	Federal University of Technology, Akure	10.000*	4.83340	0.039
	AbubakarTafawaBalewa University	11.55833*	4.01169	0.004
	National Open University of Nigeria	11.50735*	3.88799	0.003
MichealOkpara University of Agriculture	Federal University Lokoja	15.55556*	5.26194	0.003
	University of Ibadan	9.44444*	4.33911	0.030
Federal University Ndufu Alike	Federal University of Technology Minna	13.18750*	6.23989	0.035
	Federal University Lokoja	19.86111*	6.70769	0.003
	University of Ibadan	13.7500*	6.01106	0.023
	AbubakarTafawaBalewa University	12.68333*	6.28136	0.044
	National Open University of Nigeria	12.63235*	6.20308	0.042
Federal University of Technology, Owerri	University of Calabar	-9.80147*	3.88799	0.012
	Federal University of Petroleum Delta	-12.74790*	5.01285	0.011
	University of Ilorin	-7.44920*	3.60453	0.039
	Usman Dan Fodio University	-8.58824*	3.82862	0.025
	Federal University Dutsina-ma, Kastina	-10.67647*	4.44846	0.017

Federal University of Petroleum Delta	Federal University of Technology, Owerri	12.74790*	5.01285	0.011
	University of Benin	13.15476*	5.30872	0.014
	Nigeria Police Academy	12.23810*	6.21011	0.049
	Federal University of Technology Minna	15.00893*	5.05833	0.003
	Federal University of Agriculture Abeokuta	12.57143*	5.01285	0.012
	Otueke University Bayelsa	14.12698*	5.62525	0.012
	University of Jos	11.48052*	5.39688	0.034
	University of Ibadan	15.57143*	4.77318	0.001
	University of Uyo	11.48447*	4.81837	0.018
	University of Lagos	12.14286*	5.16712	0.019
	Federal University of Technology Akure	12.94643*	5.77702	0.025
	AbubakarTafawaBalewa University	14.50476*	5.10939	0.005
	Ahmadu Bello University	12.89401*	4.67105	0.006
	University of Abuja	13.57143*	5.30872	0.011
	National Open University Nigeria	14.45378*	5.01285	0.004
Federal University Dutse	Federal University Lokoja	12.26496*	4.84028	0.012
Federal University GashuaYobe	Federal University of Technology, Minna	10.29464*	5.05833	0.042
	Federal University Lokoja	16.96825*	5.62525	0.003
	University of Ibadan	10.85714*	4.77318	0.023
University of Ilorin	Federal University of Technology, Owerri	7.44920*	3.60453	0.039
	ObafemiAwolowo University	7.10606*	3.54760	0.046
	Federal University of Technology Minna	9.71023*	3.66752	0.008
	Federal University Lokoja	16.38384*	4.41673	0.000
	Federal University of Agriculture Abeokuta	7.27273*	3.60453	0.044
	Otueke University Bayelsa	8.82828*	4.41673	0.046
	University of Ibadan	10.27273*	3.26302	0.002
	AbubakarTafawaBalewa University	9.20606*	3.73763	0.014
	Ahmadu Bello University	7.59531*	3.11170	0.015
	University of Abuja	8.27273*	4.00580	0.039
	National Open University of Nigeria	9.15508*	3.60453	0.011
ObafemiAwolowo University	University of Calabar	-9.45833*	3.83527	0.014
	Federal University of Petroleum Delta	-12.40476*	4.97207	0.013

	University of Ilorin	-7.10606*	3.54760	0.046
	Usman Dan Fodio University	-8.24510*	3.77507	0.029
	Federal University Dutsina-ma ,Kastina	-10.3333*	4.40246	0.019
University of Benin	University of Calabar	-10.20833*	4.26266	0.017
	Federal University of Petroleum, Delta	-13.15476*	5.30872	0.014
	Usman Dan Fodio University	-8.99510*	4.20859	0.033
	Federal University Dutsina-ma, Kastina	-11.08333*	4.77940	0.021
Nigeria Defense Academy	Federal University of Technology, Minna	9.43750*	4.65094	0.043
	University of Ibadan	10.000*	4.33911	0.022
Federal University Lafia	Federal University of Technology, Minna	10.58036*	5.05833	0.037
	University of Ibadan	11.14286*	4.77318	0.020
	AbubakarTafawaBalewa University	10.07619*	5.10939	0.049
Nigeria Police Academy	Federal University of Petroleum, Delta	-12.23810*	6.21011	0.049
Usman Dan Fodio University	ObafemiAwolowo University	8.24510*	3.77507	0.029
	University of Benin	8.99510*	4.20859	0.033
	Federal University of Technology, Minna	10.84926*	3.88799	0.005
	Federal University Lokoja	17.52288*	4.60143	0.000
	Otueke University Bayelsa	9.96732*	4.60143	0.031
	University of Ibadan	11.41176*	3.50899	0.001
	University of Uyo	7.32481*	3.57021	0.041
	University of Lagos	7.98319*	4.02851	0.048
	AbubakarTafawaBalewa University	10.34510*	3.95419	0.009
	Ahmadu Bello Univeristy	8.73435*	3.36874	0.010
	University of Abuja	9.41176*	4.20859	0.026
	National Open University of Nigeria	10.29412*	3.82862	0.007
Federal University of Technology Minna	University of Calabar	-12.06250*	3.94646	0.002
	Federal University Ndufu Alike	-13.18750*	6.23989	0.035
	Federal University of Petroleum Delta	-15.00893*	5.05833	0.003
	Federal University GashuaYobe	-10.29464*	5.05833	0.042
	University of Ilorin	-9.71023*	3.66752	0.008
	Nigeria Defense Academy	-9.43750*	4.65094	0.043
	Federal University Lafia	-10.58036*	5.05833	0.037
	Usman Dan Fodio University	-10.84926*	3.88799	0.005
	University of Benin Kebbi	-12.00893*	5.05833	0.018

	Federal University Dutsina-ma, Kastina	-12.93750*	4.49965	0.004
Federal University Lokoja	ModibboAdamaUnviersityYola	-15.6111*	5.88303	0.008
	University of Calabar	-18.73611	4.65094	0.000
	MichealOkpara University of Agriculture	-15.5556*	5.26194	0.003
	Federal University Ndufu Alike	-19.86111*	6.70769	0.003
	Federal University of Petroleum, Delta	-21.68254*	5.62525	0.000
	Federal University Duste	-12.26496*	4.84028	0.012
	Federal University Gashua, Yobe	-16.96825*	5.62525	0.003
	University of Ilorin	-16.38384*	4.41673	0.000
	ObafemiAwolowo University	-9.27778*	4.55697	0.042
	Nigeria Defense Academy	-16.1111*	5.26194	0.002
	Federal University Lafia	-17.25397*	5.62525	0.002
	Usman Dan Fodio University	-17.52288*	4.60143	0.000
	Federal University Maduguri	-13.11111*	4.55697	0.004
	Federal University Oye Ekiti	-17.71111*	6.22601	0.005
	Federal University of Agriculture, Abeokuta	-9.11111*	4.60143	0.048
	University of Benin kebbi	-1868254*	5.62525	0.001
	University of Jos	-10.20202*	5.01706	0.043
	University of Port Harcourt	-12.1111*	4.84028	0.013
	Federal University Dutsina-ma, Kastina	-19.61111*	5.12871	0.000
	University of Agriculture Markurdi	-12.1111*	4.92210	0.014
	Bayero University Kano	-11.83838*	5.01706	0.019
	University of Uyo	-10.19807*	4.38876	0.021
	University of Lagos	-9.53968*	4.76904	0.046
	University of Nigeria Nsukka	-12.75817*	4.18433	0.002
	Ahmadu Bello University	-8.78853*	4.22649	0.038
	AKWA	-14.03968*	4.76904	0.003
	Federal University Wukari	-12.86111*	5.42388	0.018
Federal University Maduguri	Federal University Lokoja	13.1111*	4.55697	0.004
	University of Ibadan	7.000*	3.45049	0.043
Federal University Oye Ekiti	Federal University Lokoja	17.71111*	6.22601	0.005
	University of Ibadan	11.6000*	5.46837	0.034
Federal University of Agriculture, Abeokuta	University of Calabar	-9.62500*	3.88799	0.014
	Federal University of Petroleum Delta	-12.57143*	5.01285	0.012
	University of Ilorin	-7.27273*	3.60453	0.044
	Usman Dan Fodio University	-8.41176*	3.82862	0.028
	Federal University Dutsina-ma, Kastina	-10.5000*	4.44846	0.019

University of Benin Kebbi	Federal University of Technology, Minna	12.00893*	5.05833	0.018
	Otueke University Bayelsa	11.12698*	5.62525	0.048
	University of Ibadan	12.57143*	4.77318	0.009
	Ahmadu Bello University	9.89401*	4.67105	0.035
	University of Abuja	10.57143*	5.30872	0.047
	National Open University of Nigeria	11.45378*	5.01285	0.023
Otueke University Bayelsa	University of Calabar	-11.18056*	4.65094	0.017
	Federal University of Petroleum Delta	-14.12698*	5.62525	0.012
	University of Ilorin	-8.82828*	4.41673	0.046
	Usman Dan Fodio, University	-9.96732*	4.60143	0.031
	University of Benin Kebbi	-11.12698*	5.62525	0.048
	Federal University Dutsina-ma, Kastina	-12.05556*	5.12871	0.019
University of Jos	Federal University of Petroleum Delta	-11.48052*	5.39688	0.034
	Federal University Lokoja	10.20202*	5.01706	0.043
University of Ibadan	University of Calabar	-12.62500*	3.57367	0.000
	MichealOkpara University of Agriculture	-9.44444*	4.33911	0.030
	Federal University Ndufu Alike	-13.7500*	6.01106	0.023
	Federal University of Petroleum, Delta	-15.57143*	4.77318	0.001
	Federal University GashuaYobe	-10.85714*	4.77318	0.023
	University of Ilorin	-10.27273*	3.26302	0.002
	Nigeria Defense Academy	-10.000*	4.33911	0.022
	Federal University Lafia	-11.14286*	4.77318	0.020
	Usman Dan Fodio University	-11.41176*	3.50899	0.001
	Federal University Maduguri	-7.000*	3.45049	0.043
	Federal University Oye Ekiti	-11.6000*	5.46.837	0.034
	University of Benin	-12.57143*	4.77318	0.009
	Federal University Dustina-MA Kastina	-13.50000*	4.17654	0.001
	University of Nigeria Nsukka	-6.64706*	2.94082	0.024
Federal University Dutsina-MA	Federal University of Technology Owerri	10.67647*	4.4846	0.017
	Obafemi Awolow University	10.33333*	4.40246	0.019
	University of Benin	11.08333*	4.77940	0.021
	Federal University of Tech Minna	12.93750*	4.49965	0.004
	Federal University of Lokoja	19.61111	5.12871	0.000
	Federal University of Agric Abeokuta	10.50000*	4.44846	0.019
	Otueke University Bayelsa	12.05556*	5.12871	0.019

	University of Ibadan	13.50000*	4.17654	0.001
	University of Uyo	9.41304*	4.22810	0.026
	University of Lagos	10.07143*	4.62162	0.030
	Federal University of Technology Akure	10.87500*	5.29473	0.041
	Abubakar Tafawa Balewa University	12.43333	4.55697	0.007
	Ahmadu Bello University	10.82258*	4.05941	0.008
	NOUN	12.38235*	4.44846	0.006
University of Agriculture Markurdi	Federal University of Lokoja	12.11111*	4.92210	0.014
Bayero Kano	Federal University of Lokoja	11.83838*	5.01706	0.019
University of Uyo	University of Calabar	-8.53804*	3.63380	0.019
	Federal University of Petroleum Delta	-11.48447*	4.81837	0.018
	Usman Dan Fodio University	-7.32481*	3.57021	0.041
	Federal University of Lokoja	10.19807*	4.38876	0.021
	Federal University Dutsina-MA Katsina	-9.41304*	4.22810	0.026
University of Lagos	University of Calabar	-9.19643*	4.08497	0.025
	Federal University of Petroleum Delta	-12.14286*	5.16712	0.019
	Usman Danfodio University	-7.98319*	4.02851	0.048
	Federal University of Lokoja	9.53968*	4.76904	0.046
	Federal University Dutsin-Ma Kastina	-10.07143*	4.62162	0.030
Federal University of Akure	University of Calabar	-10.00000*	4.83340	0.039
	Federal University Dutsin-Ma Kastina	-10.87500*	5.29473	0.041
University of Nigeria Nsukka	Federal University of Lokoja	12.75817*	4.18433	0.002
	University of Ibadan	6.64706*	2.94082	0.024
Abubakar Tafa Balewa University	University of Calabar	-11.55833*	4.0169	0.004
	Federal University of Ndufu Alike	-12.68333*	6.28136	0.044
	Federal University of Petroleum Delta	-14.50476*	5.109339	0.005
	University of Ilorin	-9.20606*	3.73763	0.014
	Federal University of Lafia	-10.07619*	5.10939	0.049
	Usman Danfodio University	-10.34510*	3.95419	0.009
	University of Bernin Kebbi	-11.50476*	5.10939	0.025
	Federal University Dutsina-Ma kastina	-12.43333*	4.55697	0.007
Ahmdu Bello	University of Calabar	-9.94758*	3.43606	0.004

University	Usman Danfodio University	-873435*	3.36874	0.010
	Federal University Dutsina-Ma	-10.82258*	4.05941	0.008
Akwa	Federal University of Lokoja	-14.03968*	4.76904	0.003
	University of Ibadan	7.92857*	3.72607	0.034
University of Abuja	University of Calabar	-10.62500*	4.26266	0.013
	Federal University of Petroleum Delta	13.57143*	5.30872	0.011
	University of Ilorin	-8.27273*	4.00580	0.039
	Usman Danfodio University	-9.41176*	4.20859	0.026
	University of Bernin Kebbi	-10.57143*	5.30872	0.047
	Federal University Dutsin-ma Kastina	-11.50000*	4.77940	0.016
NOUN	University of Calabar	-11.50735*	3.88799	0.003
	Federal University Ndufu Alike	-12.63235*	6.20308	0.042
	Federal University of Petroleum Delta	-14.45378*	5.01285	0.004
	University of Ilorin	-9.15508*	3.60453	0.011
	Federal University of Lafia	-10.02521	5.01285	0.046
	Usman Danfodio University	-10.29412*	3.82862	0.007
	University of Benin	-11.45378*	5.01285	0.023
	Federal University Dutsina-Ma Kastina	-12.38235*	4.44846	0.006

APPENDIX III (c)

POST HOC ANALYSIS

Pairwise multiple comparisons of Knowledge Use by Universities

Name of University (I)	Name of University (J)	Mean difference	Std. Error	P-value
University of Calabar	Federal University of Technology Owerri	5.66544*	2.29748	0.014
	Obafemi Awolow University	5.20139*	2.26633	0.022
	University of Benin	5.72917*	2.51888	0.023
	Otueke University Bayelsa	6.09028*	2.74832	0.027
	University of Uyo	5.35598*	2.14727	0.013
	Abubakar Tafawa Balewa University	6.17917*	2.37058	0.009
	NOUN	6.19485*	2.29748	0.007
Michael Okpara University of Agric	Federal University of Technology Owerri	6.01961*	2.71907	0.027
	Obafemi Awolow University	5.55556*	2.69280	0.040
	University of Benin	6.08333	2.90855	0.037
	Federal University of Lokoja	8.77778*	3.10937	0.005
	Otueke University Bayelsa	6.44444*	3.10937	0.039
	University of Uyo	5.71014*	2.59340	0.028
	Abubakar Tafawa Balewa University	6.53333*	2.78111	0.019
	NOUN	6.54902*	2.71907	0.016
Federal University Ndufu Alike	Federal University of Lokoja	9.11111*	3.96369	0.022
Federal University of Technology Owerri	University of Calabar	-5.66544*	2.29748	0.014
	Michael Okpara University of Agric	-6.01961*	2.71907	0.027
	Federal University of petroleum Delta	-7.63866*	2.96218	0.010
	Nigeria Defence Academy	-5.46405*	2.71907	0.045
	AKWA	-5.21008*	2.38052	0.029
Federal University of Petroleum Delta	Federal University of Technology Owerri	7.63866*	2.96218	0.010
	Federal University of Dutse	6.51648*	3.09224	0.036
	University of Ilorin	5.78571	2.86232	0.044
	Federal University Kashare	7.68571*	3.86221	0.047
	Obafemi Awolowo University	7.17460	2.93808	0.015
	University of Benin	7.70238*	3.13701	0.014
	Federal University of Technology Minna	5.97321*	2.98906	0.046
	Federal University of Lokoja	10.39683	3.32406	0.002
	Otueke University Bayelsa	8.06349*	3.32406	0.016

	University of Ibadan	5.92571*	2.82056	0.036
	University of Uyo	7.32919*	2.84726	0.010
	Abubakar Tafawa Balewa University	8.15238*	3.01923	0.007
	NOUN	8.16807*	2.96218	0.006
Federal University of Dutse	Federal University of Petroleum Delta	-6.51648*	3.09224	0.036
Federal University of Gashua Yobe	Federal University of Lokoja	7.68254*	3.32406	0.021
University of Ilorin	Federal University of Petroleum	-5.78571*	2.86232	0.044
Federal University of Kashare	Federal University of Petroleum Delta	-7.68571*	3.86221	0.047
Obafemi Awolo University	University of Calabar	-5.20139*	2.26633	0.022
	Michael Okpara University of Agric	-5.55556*	2.69280	0.040
	Federal University of Petroleum Delta	-7.17460*	2.93808	0.015
	AKWA	-4.74603*	2.35047	0.044
University of Benin	University of Calabar	-5.72917*	2.51888	0.023
	Michael Okpara University of Agric	-6.08333*	2.90855	0.037
	Federal University of Petroleum Delta	-7.70238*	3.13701	0.014
	AKWA	-5.27381*	2.59484	0.043
Nigeria Defense Academy	Federal University of Technology Owerri	5.46405*	2.71907	0.045
	Federal University of Lokoja	8.22222*	3.10937	0.008
	University of Uyo	5.15459*	2.59340	0.047
	Abubakar Tafawa Balewa University	5.97778*	2.78111	0.032
	NOUN	5.99346*	2.71907	0.028
Federal University Lafia	Federal University Lokoja	7.25397*	3.32406	0.030
Usman Danfodio University	Federal University Lokoja	5.87582*	2.71907	0.031
Federal University of Technology Minna	Federal University of Petroleum Delta	-5.97321*	2.98906	0.046
Federal University Lokoja	University of Lokoja	-8.42361*	2.74832	0.002
	Michael Okpara University of Agric	-8.77778*	3.10937	0.005
	Federal University Ndufu Alike	-9.11111*	3.96369	0.022
	Federal University of Petroleum Delta	-10.39683*	3.32406	0.002
	Federal University of Gashau	-7.68254*	3.32406	0.021

	Yobe			
	Nigeria Defence Acadmey	-8.22222*	3.10937	0.008
	Federal University of Lafia	-7.25397*	3.32406	0.030
	Usman Danfodio University	-5.87582*	2.71907	0.031
	Federal University of Maiduguri	-6.33333*	2.69280	0.019
	Federal University Oye Ekiti	-9.31111*	3.67906	0.012
	Federal University of Agric Abeokuta	-5.99346*	2.71907	0.028
	University of Bernin Kebbi	-7.11111*	3.32406	0.033
	Federal University Dutsina-Ma Kastina	-6.41111*	3.03064	0.035
	FUTA Akure	-6.36111*	3.20507	0.048
	University of Nigeria Nsukka	-5.43464*	2.47259	0.028
	Ahmadu Bello University	-5.14337*	2.49751	0.040
	AKWA	-7.96825	2.81811	0.005
Federal University of Maiduguri	Federal University of Lokoja	6.33333	2.69280	0.019
Federal University Oye Ekiti	Federal University of Technology Owerri	6.55294*	3.35568	0.051
	Federal University Lokoja	9.31111*	3.67906	0.012
	NOUN	7.08235*	3.35568	0.035
Federal University of Agric Abeokuta	Federal University of Lokoja	5.99346*	2.71907	0.028
University of Bernin Kebbi	Federal University of Lokoja	7.11111*	3.32406	0.033
Otueke University Bayelsa	University of Calabar	-6.09028*	2.74832	0.027
	Michael Okpara University of Agric	-6.44444*	3.10937	0.039
University of Ibadan	Federal University of Petroleum Delta	-5.92571*	2.82056	0.036
Federal University Dutsina-Ma Kastina	Federal University Lokoja	6.41111*	3.03064	0.035
University of Uyo	University of Calabar	-5.35598*	2.14727	0.013
	Michael Okpara University of Agric	-5.71014*	2.59340	0.028
	Federal Petroleum University Delta	-7.32919*	2.84726	0.010
	Nigeria Defence Academy	-5.15459*	2.59340	0.047
	Akwa	-4.90062*	2.23590	0.029
Federal University of Technology Akure	Federal University Lokoja	6.36111*	3.20507	0.048
University of Nigeria Nsukka	Federal University Lokoja	5.43464*	2.47259	0.028
Abubakar Tafawa	University of Calabar	-6.17917*	2.37058	0.009

Balewa University	Michael Okpara University of Agric	-6.53333*	2.78111	0.019
	Federal University of Petroleum Delta	-8.15238*	3.01923	0.007
	Nigeria Defence Academy	-5.97778*	2.78111	0.032
	Federal University Oye Ekiti	-7.06667*	3.40615	0.039
	AKWA	-5.72381*	2.4514	0.020
Ahmadu Bello University	Federal University Lokoja	5.14337*	2.49751	0.040
AKWA	Federal University of Technology Owerri	5.21008*	2.38052	0.029
	Obafemi Awolowo University	4.74603*	2.35047	0.044
	University of Benin	5.27381*	2.59484	0.043
	Federal University Lokoja	7.96825*	2.81811	0.005
	Otueke University Bayelsa	5.63492	2.81811	0.046
	University of Uyo	4.90062*	2.23590	0.029
	Abubakar Tafawa Balewa University	5.72381*	2.45114	0.020
	NOUN	5.73750*	2.38052	0.016
NOUN	University of Calabar	-6.19485*	2.29748	0.007
	Michael Okpara University of Agric	-6.54902*	2.71907	0.016
	Federal University of Petroleum Delta	-8.16807*	2.96218	0.006
	Federal University Oye Ekiti	-7.08235*	3.35568	0.035

APPENDIX III (d)

POST HOC ANALYSIS

Pairwise multiple comparisons of creativity by universities

Name of University (I)	Name of University (J)	Mean difference	Std. Error	P-value
Modibbo Adama University Yola	Federal University of Lokoja	11.61111*	5.2563	0.028
University of Calabar	Federal University of Technology Owerri	6.94853*	3.47381	0.046
	Federal University of Kashare	11.32500*	5.10973	0.027
	University of Benin	8.79167*	3.80857	0.021
	Nigeria Police Academy	10.45833*	4.77429	0.029
	Federal University of Technology Minna	11.68750*	3.52605	0.001
	Federal University Gushav	11.12500*	5.57517	0.047
	Federal University of Lokoja	16.90278*	4.15549	0.000
	Federal University Maiduguri	7.51389*	3.42670	0.029
	Otueke University Bayelsa	9.45833*	4.15549	0.023
	University of Jos	7.76136*	3.90624	0.048
	Bayero University Kano	8.57955*	3.90624	0.029
	Federal University of Technology Akure	8.50000*	4.31851	0.050
	Abubakar Tafawa Balewa University	13.59167*	3.58434	0.000
	NOUN	8.06618*	3.47381	0.021
	Federal University Wukari	12.37500*	4.31851	0.004
Michael Okpara University of Agric	Federal University of Technology of Technology Minna	9.89583*	4.15549	0.018
	Federal University of Lokoja	15.11111*	4.70140	0.001
	Abubakar Tafawa Balewa University	11.80000*	4.20506	0.005
	Federal University Wukari	10.58333*	4.84609	0.029
,	Federal University of Technology Owerri	13.82353*	5.54228	0.013
	Federal University Kashare	18.20000*	6.69021	0.007
	Obafemi Awolowo University	11.72222*	5.51288	0.034
	University of Benin	15.66667*	5.75801	0.007
	Nigeria Police Academy	17.33333*	6.43766	0.007
	Usman Danfodio University	13.23529*	5.54228	0.017
	Federal University of Technology Minna	18.56250*	5.57517	0.001
	Federal University Gushav	18.00000*	7.05210	0.011
	Federal University Lokoja	23.77778*	5.99313	0.000
	Federal University of Maiduguri	14.38889*	5.51288	0.009
	Otueke University Bayelsa	16.33333*	5.99313	0.007

	University of Jos	14.63636*	5.82308	0.012
	University of Ibadan	13.92000*	5.37072	0.010
	University of Portharcourt	12.07692*	5.70238	0.035
	Federal University Dutsina-Ma Kastina	12.50000*	5.90021	0.035
	Bayero University Kano	15.45455*	5.82308	0.008
	University of Uyo	13.08696*	5.40283	0.16
	Federal University of Technology Akure	15.37500*	6.10730	
	Abubakar Tafawa Balewa University	20.46667*	5.61222	0.000
	Ahmadu Bello University	10.41935*	5.29854	0.050
	University of Abuja	12.33333*	5.75801	0.033
	NOUN	14.94118*	5.5422/8	0.007
	Federal University Wukari	19.25000*	6.10730	0.002
Federal University of Technology Owerri	University of Calabar	-6.94853*	3.47381	0.046
	Federal University of Ndufu Alike	-13.82353*	5.54228	0.013
	Federal University of Petroleum Delta	-9.25210*	4.47884	0.039
	Federal University Lokoja	9.95425	4.11125	0.016
Federal University of Petroleum Delta	Federal University of Technology Owerri	9.25210*	47.47884	0.039
	Federal University Kashare	13.62857*	5.83969	0.020
	University of Benin	11.09524*	4.74319	0.020
	Nigeria Police Academy	12.76190*	5.54856	0.022
	Federal University of Technology Minna	13.99107*	4.51948	0.002
	Federal University Gushav	13.42857*	6.25102	0.032
	Federal University of Lokoja	19.20635*	5.02601	0.000
	Federal University of Maiduguri	9.81746*	4.44240	0.028
	Otueke University Bayelsa	11.76190*	5.02601	0.020
	University of Jos	10.06494*	4.82197	0.037
	University of Ibadan	9.34857*	4.26471	0.09
	Bayero University kano	10.88312*	4.82197	0.024
	University of Uyo	8.51553*	4.30508	0.049
	Federal University of Technology Akure	10.80357*	5.16161	0.037
	Abubakar Tafawa Balewa University	15.89524*	4.56510	0.001
	NOUN	10.36975*	4.47884	0.021
	Federal University Wukari	14.67857*	5.16161	0.005
Fedral Univesity of Dutse	Federal University of Technology Minna	8.10096*	3.72392	0.030
	Federal University of Lokoja	13.31624*	4.32466	0.002

	Abubakar Tafawa Balewa University	10.00513*	3.77916	0.008
	Federal University Wukari	8.78846	4.48153	0.050
Federal University of Gashua Yobe	Federal University of Lokoja	12.34921*	5.02601	0.014
	Abubakar Tafawa Balewa University	9.03810*	4.56510	0.048
University of Ilorin	Federal University Kashare	9.88182*	4.94105	0.046
	University of Benin	7.34848*	3.57908	0.041
	Nigeria Police Academy	9.01515*	4.59331	0.050
	Federal University of Technology Minna	10.24432*	3.27683	0.002
	Federal University of Lokoja	15.45960*	3.94622	0.000
	Otueke University Bayelsa	8.01515*	3.94622	0.043
	Abubakar Tafawa Balewa	12.14848*	3.33947	0.000
	NOUN	6.62299**	3.22055	0.040
	Federal University of Wukari	10.93182*	4.11754	0.008
Federal University Kashare	University of Calabar	-11.32500*	5.10973	0.027
	Federal University Ndufu Alike	-18.20000*	6.69021	0.007
	Federal University of Petroleum Delta	-13.62857*	5.83969	0.020
	University of Ilorin	-9.88182*	4.94105	0.046
	AKWA	-11.05714*	5.19590	0.034
Obafemi Awolow University	Federal University Ndufu Alike	-11.72222*	5.51288	0.034
	Federal University Lokoja	12.05556*	4.07153	0.003
	Abubakar Tafawa Balewa University	8.74444*	3.48665	0.012
University of Benin	University of Calabar	-8.79167*	3.80857	0.021
	Federal University Ndufu Alike	-15.66667*	5.75801	0.007
	Federal University of Petroleum Delta	-11.09524*	4.74319	0.020
	University of Ilorin	-7.34848*	3.57908	0.041
	AKWA	-8.52381*	3.92343	0.030
Nigera Defence Academy	Federal University Lokoja	12.22222*	4.70140	0.010
	Abubakar Tafawa Balewa University	8.91111*	4.20506	0.035
Federal University Lafia	Federal University Lokoja	12.06349*	5.02601	0.017
Nigeria Police Academy	University of Calabar	-10.45833*	4.77429	0.029
	Federal University Ndufu Alike	-17.33333*	6.43766	0.007
	Federal University of Petroleum Delta	-12.76190*	5.54856	0.022
	University of Ilorin	-9.01515*	4.59331	0.050
	AKWA	-10.19048*	4.8664	0.037
Usman Danfodio University	Federal University Ndufu Alike	-13.23529*	5.54228	0.017
	Abubakar Tafawa Balewa	7.23137*	3.53296	0.041

	University			
Federal University of Technology Minna	University of Calabar	-11.68750*	3.52605	0.001
	Michael Okpara University of Agric	-9.89583*	4.1554	0.018
	Federal University Ndufu Alike	-18.56250*	5.57517	0.001
	Federal University of Petroleum Delta	-13.99107*	4.51948	0.002
	Federal University of Dutse	-8.10096*	3.72392	0.030
	University of Ilorin	-10.24432*	3.27683	0.002
	Federal University Oye Ekiti	-11.16250*	5.10973	0.029
	Federal University of Agriculture Abeokuta	-7.85662	3.47381	0.024
	University of Agric Markudi	-9.14583*	3.80857	0.017
	University of Lagos	-7.49107*	3.64981	0.041
	University of Nigeria Nsukka	-8.65074*	3.02356	0.004
	Ajmadu Bello University	-8.14315*	3.07002	0.008
	AKWA	-11.41964*	3.64981	0.002
Federal University Gushav	University of Calabar	-11.12500*	5.57517	0.047
	Federal University Ndufu	-18.00000*	7.05210	0.011
	Federal University of Petroleum Delta	-13.42857*	6.25102	0.032
Federal University of Lokoja	Modibbo Adama University	-11.61111*	5.25632	0.028
	University of Calabar	-16.90278*	4.15549	0.000
	Michael Okpara University of Agric	15.11111*	4.70140	0.001
	Federal University Ndufu Alike	-23.77778*	5.99313	0.000
	Federal University of Technology Owerri	-9.95425*	4.1125	0.016
	Federal University of Petroleum Delta	-19.20635*	5.02601	0.000
	Federal University of Dutse	-13.31624*	4.32466	0.002
	Federal University of Gashua Yobe	-12.34921	5.02601	0.014
	University of Ilorin	-15.45960	3.94622	0.000
	Obafemi Awolowo University	-12.05556*	4.07153	0.003
	Nigeria Defence Academy	-12.22222*	4.70140	0.010
	Federal University Lafia	-12.06349*	5.02601	0.017
	Usman Danfodio University	-10.54248*	4.11125	0.011
	Federal University Maiduguri	-9.38889*	4.07153	0.022
	Federal University Oye Ekiti	-16.37778*	5.56277	0.003
	Federal University of Agric Abeokuta	-13.07190*	4.11125	0.002
	University of Bernin Kebbi	-11.92063*	5.02601	0.018
	University of Jos	-9.41141*	4.48261	0.042
	University of Ibadan	-9.85778*	3.87687	0.011

	University of Portharcourt	-11.70085*	4.32466	0.007
	Federal University Dutsina-Ma Kastina	-11.2778*	4.58236	0.014
	University of Agric Markudi	-14.36111*	4.39776	0.001
	University of Uyo	-10.69082*	3.92124	0.007
	University of Lagos	-12.70635*	4.26100	0.003
	University of Nigeria Nsukka	13.86601*	3.73858	0.000
	Ahmadu Bello University	-13.35842*	3.77625	0.000
	AKWA	-16.63492*	4.26100	0.000
	University of Abuja	-11.44444*	4.39776	0.010
	NOUN	-8.83660*	4.11125	0.032
Federal University of Maiduguri	University of Calabar	-7.513889*	3.42670	0.029
	Federal University Ndufu Alike	-14.38889*	5.51288	0.009
	Federal University of Petroleum Delta	-9.81746*	4.44240	0.028
	AKWA	-7.24603*	3.55392	0.042
Federal University Oye Ekiti	Federal University of Technology Minna	11.16250*	5.10973	0.029
	Federal University Lokoja	16.37778*	5.56277	0.003
	Abubakar Tafawa Balewa University	13.06667*	5.15012	0.011
	Federal University of Wukari	11.85000*	5.68558	0.038
Federal University of Agric Abeokuta	Federal University of Technology Minna	7.85662*	3.47381	0.024
	Federal University Lokoja	13.07190*	4.11125	0.002
	Abubakar Tafafwa Balewa University	9.76078*	3.53296	0.006
	Federal University of Wukari	8.54412*	4.27596	0.046
University of Bernin Kebbi	Federal University of Lokoja	11.92063*	5.02601	0.018
Otueke University Bayelsa	University of Calabar	-9.45833*	4.15549	0.023
	Federal University Ndufu Alike	-16.33333*	5.99313	0.007
	Federal University of Petroleum Delta	-11.76190*	5.02601	0.020
	University of Ilorin	-8.01515*	3.94622	0.043
	AKWA	-9.19048*	4.26100	0.032
University of Jos	University of Calabar	-7.76136*	3.90624	0.48
	Federal University Ndufu Alike	-14.63636*	5.82308	0.012
	Federal University of Petroleum Delta	-10.06494*	4.82197	0.037
	Federal University of Lokoja	9.14141*	4.48261	
University of Ibadan	University of Calabar	-7.04500*	3.19297	0.028
	Federal University Ndufu Alike	-13.92000*	5.37072	0.010
	Federal University of Petroleum Delta	-9.34857	4.26471	0.029

	Abubakar Tafawa Balewa University	6.54667*	3.25722	0.045
	AKWA	-6.77714*	3.32914	0.042
University of Portharcourt	Federal University Ndufu Alike	-12.07692*	5.70238	0.035
	Federal University Lokoja	11.70085*	4.32466	0.007
	Abubakar Tafawa Balewa	8.38974*	3.77916	0.027
Federal University Dutsin-Ma Kastina	Federal University Ndufu Alike	-12.50000*	5.90021	0.035
	Federal University Lokoja	11.27778*	4.58236	0.014
	Abubakar Tafawa Balewa University	7.96667	4.07153	0.051
University of Agric Markudi	Federal University of Technology Minna	9.14583*	3.80857	0.017
	Federal University Lokoja	14.36111*	4.39776	0.001
	Abubakar Tafawa Balewa University	11.05000*	3.8625*	0.004
	Federal University of Wukari	9.83333*	4.55211	0.031
Bayero University Kano	Univeristy of Calabar	-8.57955*	3.90624	0.029
	Federal University oNdufu Alike	-15.45455*	5.82308	0.008
	Federal University of Petroleum Delta	-10.88312*	4.82197	0.024
University of Uyo	Federal University Ndufu Alike	-13.08696*	5.40283	0.016
	Federal University of Petroleum Delta	-8.51553	4.30508	0.049
	Federal University of Lokoja	10.69082*	3.92124	0.007
	Abubakar Tafawa Balewa	7.37971*	3.30991	0.026
University of Lagos	Federal University of Technology Minna	7.49107*	3.64981	0.041
	Federal University Lokoja	12.70635*	4.26100	0.003
	Abubakar Tafawa Balewa University	9.39524*	3.70615	0.012
Federal University of Technology Akure	University of Calabar	-8.50000*	4.31851	0.050
	Federal University Ndufu Alike	-15.37500*	6.10730	0.012
	Federal University of Petroleum Delta	-10.80357*	5.16161	0.037
University of Nigeria Nsukka	Federal University of Technology Minna	8.65074*	3.02356	0.004
	Federal University Lokoja	13.86601*	3.73858	0.000
	Abubakar Tafawa Balewa University	10.55490*	3.09134	0.001
	Federal University Wukari	9.33824*	3.91898	0.018
Abubakar Tafawa Balewa University	University of Calabar	-13.59167*	3.58434	0.000
	Michael Okpara University of Agric	-11.80000*	4.20506	0.005
	Federal University Ndufu Alike	-20.46667*	5.61222	0.000
	Federal University of Petroleum	-15.89524*	4.56510	0.001

	Delta			
	Federal University of Dutse	-10.00513*	3.77916	0.008
	Federal University of Gashua Yobe	-9.03810*	4.56510	0.048
	Unilorin of Ilorin	-12.14848*	3.33947	0.000
	Obafemi Awolow University	-8.74444*	3.48665	0.012
	Nigeria Defence Academy	-8.91111	4.20506	0.035
	Usman Danfodio University	7.23137*	3.53296	0.041
	Federal University Oye Ekiti	-13.06667*	5.15012	0.011
	Federal University of Agric Abeokuta	-9.76078*	3.53296	0.006
	University of Ibadan	-6.54667*	3.2572	0.045
	University of Portharcourt	-8.38974	3.77916	0.027
	University of Agric Markudi	-11.05000*	3.86259	0.004
	University of Uyo	-7.37971*	3.30991	0.026
	University of Lagos	-9.39524*	3.70615	0.012
	University of Nigeria Nsukka	-10.55490*	3.09134	0.001
	Ahmadu Bello University f	-10.04731*	3.13679	0.001
	AKWA	-13.32381*	3.70615	0.000
	University of Abuja	-8.13333*	3.86259	0.036
Ahmadu Bello University	Federal University Ndufu Alike	-10.41935*	5.29854	0.005
	Federal University of Technology Minna	8.14315*	3.07002	0.008
	Federal University Lokoja	13.35842*	3.77625	0.000
	Abubakar Tafawa Balewa University	10.04731*	3.13679	0.001
	Federal University Wukari	8.83065*	3.95494	0.026
AKWA	Federal University Kashare	11.05714*	5.19590	0.034
	University of Benin	8.52381*	3.92343	0.030
	Nigeria Police Academy	10.19048*	4.86641	0.037
	Federal University of Technology Minna	11.41964*	3.64981	0.002
	Federal University Lokoja	16.63492*	4.26100	0.000
	Federal University Maiduguri	7.24603*	3.55392	0.042
	Otueke University Bayelsa	9.19048*	4.26100	0.032
	University of Ibadan	6.77714*	3.32914	0.042
	Bayero University Kano	8.31169*	4.01831	0.039
	Abubakar Tafawa Balewa University	13.32381*	3.70615	0.000
	NOUN	7.79832*	3.59936	0.031
	Federal University Wukari	12.10714*	4.42014	0.006
University of Abuja	Federal University Ndufu Alike	-12.33333*	5.75801	0.033
	Federal University Lokoja	11.44444*	4.39776	0.010
	Abubakar Tafawa Balewa University	8.13333*	3.86259	0.036

NOUN	University of Calabar	-8.06618*	3.47381	0.021
	Federal University Ndufu	-14.94118*	5.54228	0.007
	Federal University of Petroleum Delta	-10.36975*	4.47884	0.021
	University of Ilorin	-6.62299*	3.22055	0.040
	Federal University Lokoja	8.83660*	4.11125	0.032
	AKWA	-7.79832*	3.5936	0.031
Federal University	University of Calabar	-12.37500*	4.31851	0.004
	Michael Okpara University of Agric	-10.58333*	4.84609	0.029
	Federal University Ndufu	-19.25000*	6.10730	0.002
	Federal University of Petroleum Delta	-14.67857*	5.16161	0.005
	Federal University of Dutse	-8.78846	4.48153	0.050
	University of Ilorin	-10.93182*	4.1754	0.008
	Federal University Oye Ekiti	-11.85000*	5.68558	0.038
	Federal University of Agric Abeokuta	-8.54412*	4.27596	0.046
	University of Agric Markudi	-9.83333*	4.55211	0.031
	University of Nigeria Nsukka	-9.33824*	3.91898	0.018
	Ahmadu Bello University	-8.83065*	3.95494	0.026
	AKWA	12.10714*	4.42014	0.006

APPENDIX III (e)

POST HOC ANALYSIS

Pairwise multiple comparisons of innovation by universities

Name of University (I)	Name of University (J)	Mean difference	Std. Error	P-value
Modibbo Adama University Yola	Usman Dan Fodio University	-12.19608*	5.58957	0.033
University of Calabar	Federal University Ndufu Alike	18.06250*	6.69793	0.007
	Federal University of Technology Owerri	10.43015*	4.17338	0.013
	Federal University Kashare	16.51250*	6.13876	0.007
	Nigeria Police Academy	19.97917*	5.73577	0.001
	Federal University of Technology Minna	9.18750*	4.23614	0.031
	Federal University Lokoja	18.756694*	4.99234	0.000
	University of Jos	13.58523*	4.69290	0.004
	University Ibadan	11.07250*	3.83599	0.004
	University of Lagos	8.88393*	4.38483	0.004
	Abubakar Tafawa Balewa University	10.51250*	4.30617	0.015
	Ahmadu Bellow University	8.31250*	3.68828	0.025
	University of Abuja	11.64583*	4.57556	0.011
	NOUN	9.43015*	4.17338	0.024
	Federal University Wukari	18.06250*	5.18820	0.001
Michael Okpara University of Agric	Nigeria Police Academy	15.55556*	6.31487	0.014
	Federal University Lokoja	14.33333*	5.64819	0.011
	Federal University Wukari	13.63889*	5.82202	0.002
Federal University Ndufu Alike	University of Calabar	-18.06250*	6.69793	0.007
	Federal University of Petroleum Delta	-20.60714*	7.50988	0.006
	Federal University of Gashua Yobe	-15.89286*	7.50988	0.035
	University of Benin	-19.00000*	6.97760	0.006
	Usman Danfodio University	-22.27941*	6.65842	0.001
	University of Bernin Kebbi	-17.46429*	7.50988	0.020
	Federal University Dutsin-Ma Kastina	-16.15000*	7.08843	0.023
	University of Agriculture Markudi	-14.00000*	6.91760	0.044
	University of Nigeria Nsukka	-16.42647*	6.33342	0.010
	AKWA	-14.10714*	96.79294	0.038
Federal University of Technology Owerri	University of Calabar	-10.43015*	4.17338	0.013
	Federal University of Petroleum Delta	-12.97479*	5.38081	0.016
	University of Benin	-11.36765*	4.51752	0.012

	Usman Danfodio University	-14.64706*	4.10966	0.000
	Unversity of Nigeria Nsukka	-8.79412	3.55907	0.014
Federal University of Petroleum Delta	Federal University Ndufu Alike	20.60714*	7.50988	0.006
	Federal University of Technology Owerri	12.97479*	5.38081	0.016
	Federal University Kashare	19.05714*	7.01572	0.007
	Nigeria Police Academy	22.52381*	6.66596	0.001
	Federal University of Technology Minna	11.73214*	5.42964	0.031
	Federal University of Lokoja	21.30159*	6.03817	0.000
	Otueke University Bayelsa	12.19048*	6.03817	0.044
	University of Jos	16.12987*	5.79304	0.006
	University of Ibadan	13.61714*	5.12356	0.008
	University of Lagos	11.42857*	5.54642	0.040
	Abubakar Tafawa Balewa University	13.05714*	5.48444	0.018
	Ahmadu Bello University	10.85714*	5.01392	0.031
	Unversity of Abuja	14.19048*	5.69840	0.013
	NOUN	11.97479*	5.38081	0.027
	Federal University Wukari	20.60714*	6.20108	0.001
Federal University of Dutse	Nigeria Police Academy	14.89744*	5.91351	0.012
	Usman Danfodio University	-9.29864*	4.41449	0.036
	Federal University Lokoja	13.67521*	5.19558	0.009
	Federal University Wukari	12.98077*	5.38405	0.016
Federal University of Gashua Yobe	Federal University Ndufu	15.89286*	7.50988	0.035
	Federal University Kashare	14.34286*	7.01572	0.041
	Nigeria Police Academy	17.80952	6.66596	0.008
	Federal University Lokoja	16.58730*	6.03817	0.006
	University of Jos	11.41558*	5.79304	0.049
	Federal University Wukari	15.89286*	6.20108	0.011
University of Ilorin	Nigeria Police Academy	13.75758*	5.51833	0.013
	Usman DanFodio University	-10.43850*	3.86912	0.007
	Federal University Lokoja	12.53535*	4.74094	0.008
	Federal University Wukari	11.84091*	4.94675	0.017
Federal University Kashare	University of Calabar	-16.51250*	6.13876	0.007
	Federal University of Petroleum Delta	-19.05714*	7.01572	0.007
	Federal University of Gashua Yobe	-14.34286*	7.01572	0.041
	University of Benin	-17.45000*	6.37771	0.006
	Usman Danfodio University	-20.72941*	6.09562	0.001
	University of Bernin Kebbi	-15.91429*	7.01572	0.024
	Federal University Dutsina-Ma Kastina	-14.60000*	6.56261	0.027
	University of Nigeria Nsukka	-14.87647*	5.73883	0.010

	AKWA	-12.55714*	6.24228	0.045
Obafemi Awolowo University	Nigeria Police Academy	14.00000*	5.64819	0.014
	Usman Danfodio University	-10.19608*	4.05218	0.012
	Federal University Lokoja	12.77778*	4.89148	0.009
	Federal University Wukari	12.08333*	5.09121	0.018
University of Benin	Federal University Ndufu Alike	19.00000*	6.91760	0.006
	Federal University of Technology Owerri	11.36765*	4.51752	0.012
	Federal University Kashare	17.45000*	6.37771	0.006
	Nigeria Police Academy	20.91667*	5.99081	0.001
	Federal University of Technology	10.12500*	4.57556	0.027
	Federal University Lokoja	19.69444*	5.28340	0.000
	Otueke University Bayelsa	10.58333*	5.28340	0.046
	University of Jos	14.52273*	5.0014	0.004
	University of Ibadan	12.01000*	4.2078	0.005
	University of Lagos	9.82143*	4.71355	0.038
	Abubakar Tafawa Balewa University	11.45000*	4.64046	0.014
	Ahmadu Bello University	9.25000*	4.07360	0.024
	University of Abuja	12.58333*	4.89148	0.010
	NOUN	10.36765*	4.51752	0.022
	Federal University Wukari	19.00000*	5.46884	0.001
Nigeria Defence Academy	Nigeria Police Academy	15.55556*	6.31487	0.014
	Federal University Lokoja	14.33333*	5.64819	0.011
	Federal University Wukari	13.63889*	5.82202	0.020
Federal University Lafia	Nigeria Police Academy	13.23810*	6.66596	0.048
	Usman Danfodio University	-10.95798*	5.38081	0.042
	Federal university Lokoja	12.01587*	6.03817	0.047
Nigeria Police Academy	University of Calabar	-19.97917*	5.73577	0.001
	Michael Okpara University of Agric	-15.55556*	6.31487	0.014
	Federal University of Technology Delta	-22.52381*	6.66596	0.001
	Federal University of Dutse	-14.89744*	5.91351	0.012
	Federal University of Gashua Yobe	-17.80952*	6.66596	0.008
	University of Ilorin	-13.75758*	5.5183	0.013
	Obafemi Awolow University	-14.00000*	5.64819	0.014
	University of Benin	-20.91667*	5.99081	0.001
	Nigeria Defence Academy	-15.55556*	6.31487	0.014
	Federal University Lafia	-13.23810	6.66596	0.048
	Usman Danfodio University	-24.19608*	5.68957	0.000
	Federal University Maiduguri	-13.44444*	5.64819	0.018
	Federal University of Agric Abeokuta	-14.84314	5.68957	0.009

	University of Bernin Kebbi	-19.38095*	6.66596	0.004
	University of PortHarcourt	-12.43590*	5.91351	0.036
	Federal University Dutsina-MA Kastina	-18.06667*	6.18729	0.004
	University of Agric Markudi	-15.91667*	5.99081	0.008
	Bayero University Kano	-13.03030*	6.08091	0.033
	University of Uyo	-13.57971*	5.49257	0.014
	Federal University of Technology Akure	-15.29167*	6.47082	0.019
	University of Nigeria Nsukka	-18.34314*	5.30555	0.001
	Ahmadu Bello University	-11.66667*	5.34392	0.030
	AKWA	-16.02381*	5.84644	0.006
Usman Danfodio University	Modibbo Adaman University Yola	12.19608*	5.68957	0.033
	Federal University Ndufu Alike	22.27941*	6.65842	0.001
	Federal University of Technology Owerri	14.64706*	4.10966	0.000
	Federal University of Dutse	9.29864*	4.41449	0.036
	University of Ilorin	10.43850*	3.86912	0.007
	Federal University Kashare	20.72941*	6.09562	0.001
	Obafemi Awolowo University	10.19608*	4.05218	0.012
	Federal University Lafia	10.95798*	5.38081	0.042
	Nigeria Police Academy	24.19608*	5.68957	0.000
	Federal University of Technology Minna	13.40441*	4.17338	0.001
	Federal University Gushav	13.52941*	6.65842	0.043
	Federal University Lokoja	22.97386*	4.93920	0.00
	Federal University of Agric Abeokuta	9.35294*	4.10966	0.023
	Otueke University Bayelsa	13.86275*	4.93920	0.005
	University of Jos	17.80214*	4.63633	0.000
	University of Ibadan	15.28941*	3.76657	0.000
	University of Portharcourt	11.76018*	4.41449	0.008
	Bayero University Kano	11.16578*	4.63633	0.016
	University of Uyo	10.61637*	8.83228	0.006
	University of Lagos	13.10084*	4.32422	0.003
	Abubakar Tafawa Balewa University	14.72941*	4.24444	0.001
	Ahmadu Bello University	12.52941*	3.61602	0.001
	University of Abuja	15.86275*	4.51752	0.000
	NOUN	13.64706*	4.10966	0.001
	Federal University Wukari	22.27941*	5.13708	0.000
Federal University of Technology Minna	University of Calabar	-9.18750*	4.23614	0.031
	Federal University of Petroleum Delta	-11.73214*	5.42964	0.031

	University of Benin	-10.12500*	4.57556	0.027
	Usman Danfodio University	-13.40441*	4.17338	0.001
Federal University Gushav	Usman Danfodio University	-13.52941*	6.65842	0.043
Federal University Lokoja	University of Calabar	-18.75694*	4.99234	0.000
	Michael Okpara University of Agric	-14.33333*	5.64819	0.011
	Federal University of Petroleum Delta	-21.30159*	6.03817	0.000
	Federal University of Dutse	-13.67521*	5.19558	0.009
	Federal University of Gashua Yobe	-16.58730*	6.03817	0.006
	University of Ilorin	-12.53535*	4.74094	0.008
	Obafemi Awolowo University	-12.77778*	4.89148	0.009
	University of Benin	-19.69444*	5.28340	0.000
	Nigeria Defence Academy	-14.33333*	5.64819	0.011
	Federal University Lafia	-12.01587*	6.03817	0.047
	Usman Danfodio University	-22.97386*	4.93920	0.000
	Federal University of Maiduguri	-12.22222*	6.68303	0.059
	Federal University of Agric Abeokuta	-13.62092*	4.93920	0.006
	University of Portharcourt	-11.21368*	5.19558	0.031
	Federal University Dutsina-Ma Kastina	-16.84444*	5.50518	0.002
	University of Agric Markudi	-14.69444*	5.28340	0.006
	Bayero University Kano	-11.80808*	5.38534	0.029
	University of Uyo	-12.35749*	4.71092	0.009
	Federal University of Technology Akure	-14.06944*	5.82202	0.016
	University of Nigeria Nsukka	-17.12092*	4.49148	0.000
	Ahmadu Bello University	-10.44444*	4.53674	0.022
	AKWA	-14.80159*	5.11911	0.004
Federal University of Maiduguri	Nigeria Police Academy	13.4444*	5.64819	0.018
	Usman Danfodio University	-10.75163*	4.05218	0.008
	Federal University Lokoja	12.22222*	4.89148	0.013
	Federal University Wukari	11.52778*	5.09121	0.024
Federal University of Agric Abeokuta	Nigeria Police Academy	-9.35294*	4.10966	0.023
	Federal University Lokoja	13.62092*	4.93920	0.006
	Federal University Wukari	12.92647*	5.13708	0.012
University of Bernin Kebbi	Federal University Ndufu Alike	17.46429*	7.50988	0.002
	Federal University Kashare	15.91429*	7.01572	0.024
	Nigeria Police Academy	19.38095*	6.66596	0.004
	Federal University Lokoja	18.15873*	6.03817	0.003
	University of Jos	12.98701*	5.79304	0.025
	University of Ibadan	10.47429*	5.12356	0.041

	Federal University Wukari	17.46429*	6.20108	0.005
Otueke Universiy Bayelsa	Federal University of Petroleum Delta	-12.19048*	6.03817	0.044
	University of Benin	-10.58333*	5.28340	0.046
	Usman Danfodio University	-13.86275*	4.93920	0.005
University of Jos	University of Calabar	-13.58523*	4.69290	0.004
	Federal University of Petroleum Delta	-16.12987*	5.79304	0.006
	Federal University of Gashua Yobe	-11.41558*	5.79304	0.049
	University of Benin	-14.52273*	5.00141	0.004
	Usman Dafodio University	-17.80214*	4.63633	0.000
	University of Bernin Kebbi	-12.98701*	5.79304	0.025
	Federal University Dutsina-Ma Kastina	-11.67273*	5.23515	0.026
	University of Nigeria Nsukka	-11.94920*	4.15610	0.004
	AKWA	-9.62987	4.82753	0.047
University of Ibadan	University of Calabar	-11.07250*	3.83599	0.004
	Federal University of Petroleum Delta	-13.61714*	5.12356	0.008
	University of Benin	-12.01000*	4.20781	0.005
	Usman Danfodio University	-15.28941*	3.76657	0.000
	University of Bernin Kebbi	-10.47429*	5.12356	0.041
	Federal University Dutsina-Ma Kastina	-9.16000*	4.48311	0.042
	University of Nigeria Nsukka	-9.43647*	3.15669	0.003
University of Portharcourt	Nigeria Police Academy	12.43590*	5.91351	0.036
	Usman Danfodio University	-11.76018*	4.41449	0.0008
	Federal University Lokoja	11.21368*	5.19558	0.031
Federal University of Dutsina-MA Kastina	Federal University Ndufu Alike	16.15000*	7.08843	0.023
	Federal University Kashare	14.60000*	6.56261	0.027
	Nigeria Police Academy	18.06667*	6.18729	0.004
	Federal University Lokoja	16.84444*	5.50518	0.002
	University Jos	1.67273*	5.23515	0.026
	University of Ibadan	9.16000*	4.48311	0.042
	Federal University Wukari	16.15000*	5.68338	0.005
Universiy of Agric Markudi	Federal University Ndufu Alike	14.00000*	6.91760	0.044
	Nigeria Police Academy	15.91667*	5.99081	0.008
	Federal University Lokoja	14.69444*	5.28340	0.006
	Federal University Wukari	14.00000*	5.46884	0.011
Bayero University Kano	Nigeria Police Academy	13.03030*	6.08091	0.033
	Usman Danfodio University	-11.16578*	4.63633	0.016
	Federal University Lokoja	11.80808*	5.38534	0.029
	Federal University Wukari	11.11364*	5.56738	0.046
University of Uyo	Nigeria Police Academy	13.57971*	5.49257	0.014

	Usman Danfodio University	-10.61637*	3.83228	0.006
	Federal University Lokoja	12.35749*	4.71092	0.009
	Federal University Wukari	11.66304*	4.91799	0.018
University of Lagos	University of Calabar	-8.88393*	4.38483	0.043
	Federal University of Petroleum Delta	-11.42857*	5.54642	0.040
	University of Benin	-9.82143	4.71355	0.038
	Usman Danfodio University	-13.10084	4.32422	0.003
Federal University of Technology Akure	Nigeria Police Academy	15.29167*	6.47082	0.019
	Federal University Lokoja	14.06944*	5.82202	0.016
	Federal University Wukari	13.37500*	5.99081	0.026
University of Nigeria Nsukka	Federal University Ndufu Alike	16.42647*	6.33342	0.001
	Federal University of Technology Owerri	8.79412*	3.55907	0.014
	Federal University Kashare	14.87647*	5.73883	0.010
	Nigeria Police Academy	18.34314*	5.30555	0.001
	Federal University of Technology Minna	7.55147*	3.63246	0.038
	Federal University Lokoja	17.12092*	4.49148	0.000
	University of Jos	11.94920*	4.15610	0.004
	University of Ibadan	9.43647*	3.15669	0.003
	Abubakar Tafawa Balewa University	8.87647*	3.71389	0.017
	Ahmadu Bello University	6.67647*	2.97545	0.025
	University of Abuja	10.00980*	4.02314	0.013
	NOUN	7.79412*	3.55907	0.029
	Federal University Wukari	16.42647*	4.70821	0.001
Abubakar Tafawa Balewa University	University of Calabar	-10.51250*	4.30617	0.015
	Federal University of Petroleum Delta	-13.05714*	5.48444	0.018
	University of Benin	-11.45000*	4.64046	0.014
	Usman Danfodio University	-14.72941*	4.24444	0.001
	University of Nigeria Nsukka	-8.87647*	3.71389	0.017
Ahmadu Bello University	Unversity of Calabar	-8.31250*	3.68828	0.025
	Federal University of Petroleum Delta	-10.85714*	5.01392	0.031
	University of Benin	-9.25000*	4.07360	0.024
	Nigeria Police Academy	11.66667*	5.34392	0.030
	Usman Danfodio University	-12.52941*	3.61602	0.001
	Federal University Lokoja	10.44444*	4.53674	0.022
	Unversity of Nigeria Nsukka	-6.67647	2.97545	0.025
	Federal University Wukari	9.75000*	4.75141	0.004
AKWA	Federal University Ndufu Alike	14.10714*	6.79294	0.038
	Federal University Kashare	12.55714*	6.24228	0.045
	Nigeria Police Academy	16.02381*	5.84644	0.006

	Federal University Lokoja	14.80159*	5.11911	0.004
	University of Jos	9.62987*	4.82753	0.047
	Federal University Wukari	14.10714*	5.31029	0.008
University of Abuja	University of Calabar	-11.64583*	4.57556	0.001
	Federal University of Petroleum Delta	-14.19048*	5.69840	0.013
	University of Benin	-12.58333*	4.9148	0.010
	Usman Danfodio University	-15.86275*	4.51752	0.000
	University of Nigeria	-10.00980	4.02314	0.013
NOUN	University of Calabar	-9.43015*	4.17338	0.024
	Federal University of Petroleum Delta	-11.97479*	5.38081	0.027
	University of Benin	-10.36765*	4.51752	0.022
	Usman Danfodio University	-13.64706*	4.10966	0.001
	University of Nigeria Nsukka	-7.79412*	3.55907	0.029
Federal University Wukari	University of Calabar	-18.06250*	5.18820	0.001
	Michael Okpara University of Agric	-13.63889*	5.82202	0.020
	Federal University of Petroleum Delta	-20.60714*	6.20108	0.001
	Federal University of Dutse	-12.98077*	5.38405	0.016
	Federal University Gashua Yobe	-15.89286*	6.20108	0.011
	Obafemi Awolow University	-12.08333*	5.09121	0.018
	University of Benin	-19.00000*	5.46884	0.001
	Nigeria Defence Academy	-13.63889*	5.82202	0.020
	Usman Danfodio University	-22.27941*	5.13708	0.000
	Federal University Maiduguri	-11.52778*	5.09121	0.024
	Federal University of Agric Abeokuta	-12.92647*	5.13708	0.012
	University of Bernin Kebbi	-17.46429*	6.20108	0.005
	Federal University Dutsina-Ma Kastina	-16.15000*	5.68338	0.005
	University of Agric Markudi	-14.00000*	5.46884	0.011
	Bayero University of Kano	-11.11364*	5.56738	0.046
	University of Uyo	-11.66304*	4.91799	0.018
	Federal University of Technology Akure	-13.37500*	5.99081	0.028
	University of Nigeria Nsukka	-16.42647*	4.70821	0.001
	Ahmadu Bello University	-9.75000*	4.75141	0.041
	AKWA	-14.10714*	5.31029	0.008

APPENDIX IV

Descriptive statistics of the knowledge creation, knowledge sharing, knowledge use, creativity and innovation by universities

S/N	Universities	N	Knowledge Creation		Knowledge Sharing		Knowledge Use		Creativity		Innovation	
			$\bar{x}$	S.D	$\bar{x}$	S.D	$\bar{x}$	S.D	$\bar{x}$	S.D	$\bar{x}$	S.D
1	Abubakar Tafawa Balewa University	15	37.33	5.51	94.067	10.12	52.31	4.51	77.53	8.52	82.80	9.56
2	Ahmadu Bello University	31	36.81	5.62	95.68	9.90	52.67	5.55	87.58	9.29	85.00	14.75
3	Bayero University Kano	11	34.64	9.90	98.73	11.61	48.64	8.32	82.55	9.28	86.36	6.73
4	Federal University Dutsin-ma Kastina	10	44.30	4.24	106.50	7.32	50.30	3.80	85.50	8.50	91.40	10.81
5	Federal University Gushau	4	40.25	.96	99.75	6.34	48.75	7.81	80.00	3.37	84.00	2.45
6	Federal University Kashire	5	36.00	2.12	96.80	7.19	46.60	4.39	79.80	7.29	76.80	9.68
7	Federal University Lafia	7	39.43	6.97	104.14	13.26	51.14	3.85	86.29	14.68	86.57	14.13
8	Federal University Lokoja	9	36.33	3.08	86.89	21.89	43.89	11.91	74.22	18.99	74.56	17.10
9	Federal University Ndufu Alike	4	43.25	4.92	106.75	11.44	53.00	4.55	98.00	3.56	75.25	13.57
10	Federal University of Agric. Abeokuta	17	39.59	5.99	96.00	10.10	49.88	6.51	87.29	10.21	88.18	9.71
11	Federal University of Petroleum Efunrun	7	42.57	4.69	108.57	5.19	54.29	4.50	93.43	5.56	95.86	8.802
12	Federal University of Tech. Minna	16	37.88	7.47	93.56	19.29	48.31	10.63	79.44	14.74	84.13	15.85
13	Federal University of Tech. Owerri	17	36.59	5.43	95.82	8.30	46.65	5.41	84.18	9.08	82.88	12.67
14	Federal University Otuoke	9	38.11	3.95	94.44	7.32	46.22	7.09	81.67	4.12	83.67	6.25
15	Federal University Oye Ekiti	5	42.40	8.17	104.60	14.01	53.20	6.69	90.60	11.10	87.20	5.07
16	Federal University Wukari	8	39.50	2.00	99.75	7.11	47.77	7.74	78.75	8.94	75.25	13.74
17	Federal University, Dutse	13	38.08	6.27	99.15	11.12	47.77	7.74	87.54	12.82	88.23	13.12
18	Federal University, Gashua Yobe	7	40.43	4.16	103.86	8.78	51.57	4.32	86.57	8.24	91.14	8.69
19	Federal University, Birnin-Kebbi	7	42.57	2.23	105.57	5.94	51.00	2.58	86.14	2.41	92.71	3.99
20	FUTA Akure	8	36.88	5.46	95.63	9.97	50.25	6.88	82.63	11.92	88.62	11.77
21	Micheal Okpara University of Agric. Umudike	9	39.89	5.86	102.44	8.71	52.67	5.55	89.33	9.47	88.89	13.08
22	Modibbo Adama University of Technology, Yola	6	39.33	3.98	102.50	8.456	49.83	4.62	85.83	8.09	85.33	4.68
23	Nigeria Defence Academy	9	42.33	3.28	103.00	5.17	52.11	2.71	86.44	3.71	88.89	5.65
24	Nigeria Police Academy	6	33.67	5.61	96.33	6.77	46.83	7.78	80.67	9.07	73.33	9.5638
25	Nnamdi Azikwe University, Awka	14	40.43	4.42	100.93	9.86	53.00	4.55	90.86	7.74	89.36	12.07
26	NOUN	17	38.06	4.83	94.12	11.83	54.29	4.50	83.06	5.94	83.88	10.64
27	Obafemi Awolowo University, Ile - Ife	18	36.17	6.06	96.17	10.94	47.11	8.07	86.28	12.70	87.33	10.65
28	University of Abuja	12	38.33	4.58	95.00	6.08	46.65	5.41	85.67	5.73	81.67	6.40
29	University of Agric Markurdi	12	40.75	4.03	99.00	7.29	48.50	4.52	88.58	9.03	89.25	9.49
30	University of Benin	12	43.25	4.98	95.42	10.85	46.58	12.15	82.33	22.05	94.25	22.94
31	University of Calabar	16	41.75	4.58	105.63	8.12	52.31	4.51	91.13	4.33	93.31	8.13
32	University of Ibadan	25	38.92	6.28	93.00	16.59	48.36	8.00	84.08	10.36	82.24	12.95
33	University of Ilorin	22	38.68	4.46	103.27	9.41	48.50	6.89	89.68	9.81	87.09	10.57
34	University of Jos	11	35.91	4.61	97.09	7.34	48.27	5.41	83.36	4.20	79.73	8.90
35	University of Lagos	14	36.71	8.91	96.43	9.90	48.79	6.65	86.93	9.20	84.43	6.72
36	University of Maiduguri	18	38.56	6.13	100.00	10.27	50.22	6.24	83.61	9.42	86.78	9.12
37	University of Nigeria Nsukka	34	37.97	5.64	99.65	15.82	49.83	4.62	88.09	10.97	91.68	16.60
38	University of Port-Harcourt	13	39.69	6.82	99.00	10.52	49.08	6.92	85.92	9.88	85.77	13.62
39	University of Uyo	23	37.48	3.37	97.09	6.71	46.96	3.57	84.91	4.61	86.91	8.44
40	Usman Dan Fodio University	17	38.82	10.93	104.41	11.13	49.77	6.16	84.77	9.38	97.53	13.93
	Total	**518**	**38.64**	**5.97**	**98.47**	**11.54**	**51.57**	**4.32**	**85.45**	**10.32**	**86.60**	**12.53**

Table 4.23 shows the descriptive statistics of the knowledge creation, knowledge sharing, knowledge use, creativity and innovation by Universities. From the 40 universities in the study, Federal University Dutsina-Ma, Kastina ($\bar{x}$=44.30) ranked highest in knowledge creation and was followed by Federal University Ndufu Alike ($\bar{x}$=43.25), University of Benin ($\bar{x}$= 43.25), Federal University of Petroleum, Efunrun ($\bar{x}$=42.57), Federal University Birin-Kebbi ($\bar{x}$ =42.57), Federal University Oye Ekiti ($\bar{x}$=42.40), Nigeria Defence Academy ($\bar{x}$= 42.33), University of Calabar ($\bar{x}$=41.75), University of Agric Markurdi ($\bar{x}$=40.75), Federal University, Gashua ($\bar{x}$=40.43), Nnamdi Azikwe University, Awka ($\bar{x}$=40.43), Federal University Gusau ($\bar{x}$ =40.25), Micheal Okpara University of Agric ($\bar{x}$=39.89), University of Port Harcourt ($\bar{x}$ =39.69), Federal University of Agric. Abeokuta ($\bar{x}$=39.59), Federal University, Wukari ($\bar{x}$ =39.50), Federal University Lafia ($\bar{x}$=39.43), Modibbo Adamawa University of Technology, Yola ($\bar{x}$=39.33), University of Ibadan ($\bar{x}$=38.92), Usman Dan Fodio University ($\bar{x}$=38.82), University of Ilorin ($\bar{x}$= 38.68),Federal University Maduguri ($\bar{x}$=38.56), University of Abuja ($\bar{x}$ =38.33), Federal University Otuoke ($\bar{x}$=38.11), Federal University, Dutse ($\bar{x}$=38.08), NOUN ($\bar{x}$ =38.06), University of Nigeria Nsukka ($\bar{x}$=37.97), Federal University of Tech. Minna ($\bar{x}$ =37.88), University of Uyo ($\bar{x}$=37.48), Abubakar Tafawa Balewa University ($\bar{x}$=37.33), Federal University of Technology, Akure ($\bar{x}$=36.88), Ahmadu Bello University ($\bar{x}$=36.81), University of Lagos ($\bar{x}$=36.71), Federal University of Tech. Owerri ($\bar{x}$=36.59), Federal University Lokoja ($\bar{x}$=36.33), Obafemi Awolowo University ($\bar{x}$=36.17), Federal University Kashire ($\bar{x}$=36.00), University of Jos ($\bar{x}$=35.91), Bayero University Kano ($\bar{x}$=34.64) and lastly Nigeria Police Academy ($\bar{x}$=33.67) respectively.

Federal University of Petroleum Resources, Efurun ($\bar{x}$=108.57) ranked highest in knowledge sharing and was followed by Federal University Ndufu Alike ($\bar{x}$=106.75), Federal University Dutsina-Ma, Kastina ($\bar{x}$=106.50), University of Calabar ($\bar{x}$=105.63), Federal University Birin-Kebbi ($\bar{x}$=105.57), Federal University Oye Ekiti ($\bar{x}$=104.60), Usman Dan Fodio University ($\bar{x}$=104.41), Federal University Lafia ($\bar{x}$=104.14), Federal University, Gashua ($\bar{x}$=103.86), University of Ilorin ($\bar{x}$=103.27), Nigeria Defence Academy ($\bar{x}$=103.00), Modibbo Adamawa University of Technology, Yola ($\bar{x}$=102.50), Micheal Okpara University of Agric ($\bar{x}$ =102.44), Nnamdi Azikwe University, Akwa ($\bar{x}$=100.93), University of Maduguri ($\bar{x}$=100.00), Federal University Gushau ($\bar{x}$=99.75), Federal University Wukari ($\bar{x}$=99.75), University of Nigeria Nsukka ($\bar{x}$=99.65), Federal University, Dutse ($\bar{x}$=99.15), University of Port Harcourt (

$\bar{x}$=99.00), University of Agric Markurdi ($\bar{x}$=99.00), Bayero University Kano ($\bar{x}$=98.73), University of Jos ($\bar{x}$=97.09), University of Uyo ($\bar{x}$=97.09), Federal University Kashire ($\bar{x}$ =96.80), University of Lagos ($\bar{x}$=96.43), Nigeria Police Academy ($\bar{x}$=96.33), Obafemi Awolowo University ($\bar{x}$=96.17), Federal University of Agric. Abeokuta ($\bar{x}$=96.00), Federal University of Tech. Owerri ($\bar{x}$=95.82), Ahmadu Bello University ($\bar{x}$=95.68), Federal University of Technology, Akure ($\bar{x}$=95.63), University of Benin ($\bar{x}$=95.42), University of Abuja ($\bar{x}$ =95.00), Federal University Otuoke ($\bar{x}$=94.44), NOUN ($\bar{x}$=94.12), Abubakar Tafawa Balewa University ($\bar{x}$=94.067), Federal University of Tech. Minna ($\bar{x}$=93.56), University of Ibadan ($\bar{x}$ =93.00) and lastly Federal University Lokoja ($\bar{x}$=86.89) respectively.

Federal University of Petroleum Efunrun ($\bar{x}$=54.29) and NOUN ($\bar{x}$=54.29) ranked highest in knowledge use and was followed by Federal University Oye Ekiti ($\bar{x}$=53.20), Federal University Ndufu Alike ($\bar{x}$=53.00), Nnamdi Azikwe University, Akwa ($\bar{x}$=53.00), Micheal Okpara University of Agric ($\bar{x}$=52.67), Ahmadu Bello University ($\bar{x}$=52.67), University of Calabar ($\bar{x}$=52.31), Abubakar Tafawa Balewa University ($\bar{x}$=52.31), Nigeria Defence Academy ($\bar{x}$=52.11), Federal University, Gashua ($\bar{x}$=51.57), Federal University Lafia ($\bar{x}$=51.14), Federal University Birin-Kebbi ($\bar{x}$= 51.00), Federal University Dutsina-Ma Kastina ($\bar{x}$=50.30), FUTA Akure ($\bar{x}$=50.25), University of Maduguri ($\bar{x}$=50.22), Federal University of Agric. Abeokuta ($\bar{x}$ =49.88), Modibbo Adamawa University of Technology, Yola ($\bar{x}$=49.83), University of Nigeria Nsukka ($\bar{x}$=49.83), Usman Dan Fodio University ($\bar{x}$=49.77), University of Port Harcourt ($\bar{x}$ =49.08), University of Lagos ($\bar{x}$=48.79), Federal University Gushau ($\bar{x}$=48.75), Bayero University Kano ($\bar{x}$=48.64), University of Ilorin ($\bar{x}$=48.50), University of Agric Markurdi ($\bar{x}$ =48.50), University of Ibadan ($\bar{x}$=48.36), Federal University of Tech. Minna ($\bar{x}$=48.31), University of Jos ($\bar{x}$=48.27), Federal University, Dutse ($\bar{x}$=47.77), Federal. University, Wukari ($\bar{x}$=47.77), Obafemi Awolowo University ($\bar{x}$=47.11), University of Uyo ($\bar{x}$=46.96), Nigeria Police Academy ($\bar{x}$=46.83), Federal University of Tech. Owerri ($\bar{x}$=46.65), University of Abuja ($\bar{x}$=46.65), Federal University Kashire ($\bar{x}$=46.60), University of Benin ($\bar{x}$=46.58), Federal University, Otuoke ($\bar{x}$=46.22 and lastly Federal University Lokoja ($\bar{x}$=43.89) respectively.

Federal University Ndufu Alike ($\bar{x}$=98.00) ranked highest in creativity and was followed by Federal University of Petroleum Efunrun ($\bar{x}$=93.43), University of Calabar ($\bar{x}$=91.13), Nnamdi Azikwe University, Akwa ($\bar{x}$= 90.86), Federal University Oye Ekiti ($\bar{x}$=90.60), University of Ilorin ($\bar{x}$=89.68), Micheal Okpara University of Agric ($\bar{x}$=89.33), University of

Agric Markurdi ($\bar{x}$=88.58), University of Nigeria Nsukka ($\bar{x}$=88.09), Ahmadu Bello University ($\bar{x}$=87.58), Federal University, Dutse ($\bar{x}$=87.54), Federal University of Agric. Abeokuta ($\bar{x}$ =87.29), University of Lagos ($\bar{x}$=86.93), Federal University of Gashua yobe ($\bar{x}$=86.57), Nigeria Defence Academy ($\bar{x}$=86.44), Federal University Lafia ($\bar{x}$=86.29), Obafemi Awolowo University ($\bar{x}$=86.28), Federal University Birin-Kebbi ($\bar{x}$=86.14), University of Port Harcourt ($\bar{x}$=85.92), Modibbo Adamawa University of Technology, Yola ($\bar{x}$=85.83), University of Abuja ($\bar{x}$=85.67), Federal University Dutsina-Ma, Kastina ($\bar{x}$=85.50), University of Uyo ($\bar{x}$= 84.91), Usman Dan Fodio University ($\bar{x}$=84.77), Federal University of Tech. Owerri ($\bar{x}$=84.18), University of Ibadan ($\bar{x}$=84.08), University of Maduguri ($\bar{x}$=83.61), University of Jos ($\bar{x}$ =83.36), NOUN ($\bar{x}$=83.06), Federal University of Technology, Akure ($\bar{x}$=82.63), Bayero University Kano ($\bar{x}$=82.55), University of Benin ($\bar{x}$=82.33), Federal University, Otuoke ($\bar{x}$ =81.67), Nigeria Police Academy ($\bar{x}$=80.67), Federal University Gushau ($\bar{x}$=80.00), Federal University Kashire ($\bar{x}$=79.80), Federal University of Tech. Minna ($\bar{x}$=79.44), Fed. University Wukari ($\bar{x}$=78.75), Abubakar Tafawa Balewa University ($\bar{x}$=77.53) and lastly Federal University Lokoja ($\bar{x}$=74.22) respectively.

Usman Dan Fodio University ($\bar{x}$=97.53) ranked highest in innovation and was followed by Federal University of Petroleum Efunrun ($\bar{x}$=95.86), University of Benin ($\bar{x}$=94.25), University of Calabar ($\bar{x}$= 93.31), Federal University Birnin-Kebbi ($\bar{x}$= 92.71), University of Nigeria Nsukka ($\bar{x}$=91.68), Federal University Dutsina-Ma Kastina ($\bar{x}$=91.40), Federal University, Gashua ($\bar{x}$= 91.14), Nnamdi Azikwe University, Awka ($\bar{x}$=89.36), University of Agric Markurdi ($\bar{x}$=89.25), Micheal Okpara University of Agric ($\bar{x}$=88.89), Nigeria Defence Academy ($\bar{x}$=88.89), FUTA Akure ($\bar{x}$=88.62), Federal University,Dutse ($\bar{x}$=88.23), Federal University of Agric. Abeokuta ($\bar{x}$=88.18), Obafemi Awolowo University ($\bar{x}$=87.33), Federal University Oye Ekiti ($\bar{x}$=87.20), University of Ilorin ($\bar{x}$=87.09), University of Uyo ($\bar{x}$=86.91), University of Maduguri ($\bar{x}$=86.78), Federal University, Lafia ($\bar{x}$=86.57), Bayero University, Kano ($\bar{x}$=86.36), University of Port Harcourt ($\bar{x}$=85.77), Modibbo Adamawa University of Technology, Yola ($\bar{x}$=85.33), Ahmadu Bello University ($\bar{x}$=85.00), University of Lagos ($\bar{x}$ =84.43), Federal University of Tech. Minna ($\bar{x}$=84.13), Federal University Gushau ($\bar{x}$=84.00), NOUN ($\bar{x}$=83.88), Federal University, Otueke ($\bar{x}$=83.67), Federal University of Tech. Owerri ($\bar{x}$=82.88), Abubakar Tafawa Balewa University ($\bar{x}$=82.80), University of Ibadan ($\bar{x}$=82.24), University of Abuja ($\bar{x}$=81.67), University of Jos ($\bar{x}$=79.73), Federal University Kashire ($\bar{x}$

=76.80), Federal University Ndufu Alike ($\bar{x}$=75.25), Federal University Wukari ($\bar{x}$=75.25), Federal University Lokoja ($\bar{x}$=74.56) and lastly Nigeria Police Academy ($\bar{x}$=73.33) respectively.

APPENDIX V

1. **Knowledge Creation by Liberians in Nigerian Federal University Libraries**

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients

N of Cases = 28.0 N of Items = 13

Alpha = .8648

Correlation between forms = .6865 Equal length Spearman-Brown = .8141

Guttman Split-half = .8133 Unequal-length Spearman-Brown = .8149

7 Items in part 1 6 Items in part 2

Alpha for part 1 = .7853 Alpha for part 2 = .7745

2. **Knowledge Sharing among Liberians in Federal University Libraries Scale**

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients

N of Cases = 28.0 N of Items = 27

Alpha = .8494

Correlation between forms = .4863 Equal length Spearman-Brown = .6543

Guttman Split-half = .6438 Unequal-length Spearman-Brown = .6546

14 Items in part 1 13 Items in part 2

Alpha for part 1 = .6957 Alpha for part 2 = .8522

3. **Channel of Knowledge Sharing among Liberians**

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients

N of Cases = 28.0 N of Items = 21

Alpha = .9746

N of Cases = 28.0 N of Items = 21

Correlation between forms = .9112 Equal length Spearman-Brown = .9535

Guttman Split-half = .9301 Unequal-length Spearman-Brown = .9536

11 Items in part 1 10 Items in part 2

Alpha for part 1 = .9234 Alpha for part 2 = .9776

4. **Knowledge Use by Librarians**

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients

N of Cases = 28.0 N of Items = 9

Alpha = .8763

Correlation between forms = .7523 Equal length Spearman-Brown = .8586

Guttman Split-half = .8585 Unequal-length Spearman-Brown = .8599
5 Items in part 1 4 Items in part 2
Alpha for part 1 = .7439 Alpha for part 2 = .8410

5. **Creativity Scale for Librarians**

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)
Reliability Coefficients
N of Cases = 28.0 N of Items = 25
Alpha = .9407
N of Cases = 28.0 N of Items = 25
Correlation between forms = .7550 Equal length Spearman-Brown = .8604
Guttman Split-half = .8516 Unequal-length Spearman-Brown = .8606
13 Items in part 1 12 Items in part 2
Alpha for part 1 = .9164 Alpha for part 2 = .8832

6. **Innovation Scale for Librarians**

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)
Reliability Coefficients
N of Cases = 28.0 N of Items = 21
Alpha = .7502
Correlation between forms = .4831 Equal length Spearman-Brown = .6515
Guttman Split-half = .6513 Unequal-length Spearman-Brown = .6519
11 Items in part 1 10 Items in part 2
Alpha for part 1 = .6478 Alpha for part 2 = .6277