

Roles, Responsibilities, Problems and Prospects of Medical Libraries toward Health Information Provision in Nigeria

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Abstract A United Nation's Administrative Committee has found that technology inequities and knowledge gap caused by misdistribution of information resources and poor access to information and its related opportunities in less developed nations has created a wide gap between the less developed and the other countries of the world. The gap so created has led to information poverty in many countries and Nigeria in particular which is besieged with the problem of poor access to health information. This paper is focused on establishing the expected roles and responsibilities as well as the problems and prospects of medical libraries in the Nigerian state vis a vis their capabilities in information services which could upscale the health literacy level of an ordinary rural Nigerian. The paper adopted a simple methodology of literature review to provide answers to the topic. The aim was to provide some leverage to accessing health information via good use of medical library services and resources in a country highly devastated by hunger, pandemic diseases and social ailments. It discovered that the state of health literacy in the country was poor even when medical libraries need to influence knowledge translation, foster communication and interpretation of health information, provide platforms for standards, encourage support for free access to information amongst others. A number of problems affecting performance of these roles like lack of support specialists, poor inventive thinking and cost of resources, inactive policies and language barrier were discussed. Areas of future potentials were given as the paper concluded that weaknesses noticed could be turned around into areas of strength for the medical libraries.

Keywords *Health Information Gap; Information Poverty; Information Service; Library-Medical*

1. Introduction

A statement on Universal Access to Basic Communication and Information Services (UABCI) was issued by the United Nation's Administrative Committee on Coordination in April, 1997. The statement identified the deepening misdistribution of access, resources and opportunities in the information and communication field. The knowledge gap with respect to information and technology inequities between industrialized and developing countries were found widening by every inch and are creating a new type of poverty, the information poverty. This new form of poverty has become home grown in

Nigeria without check, especially in health information related issues where the library could play a vital role.

Health information literacy according to Olaide (2013) connotes the ability to comprehend information on health related issues and apply the knowledge in making decisions about one's health care needs. Going by this assertion, a seemingly literate person could still become illiterate, when confronted with health information which may overwhelm him. Even in advanced climes such as United States according to the study, about 40 per cent of the population has limited health literacy. The resultant effect of the prevailing limited health information literacy in the Nigerian society has put an ordinary Nigerian at a less privileged health status leading to more frequent hospital visits, increased health care cost, reduced net productivity and enhanced both the morbidity and mortality rate.

But libraries, as Egunjobi and Akerele (2014) submitted, are primarily establishments in our communities meant to meet the information needs of citizens at all levels. Obviously, one of such needs is health information which could be primarily be dispensed by medical libraries. However this social obligation seem to be far-fetched in the Nigerian communities and has caused information poverty to be so rampant in the country consequent upon which people's awareness about their health is incredibly low. Thus the prevalence of libraries in developing countries like Nigeria has not made expected impact to reduce this new brand of poverty probably because of lack of affordable access to core information resources; legislative policy that could promote equal participation in the information society; trained work force to provide value-added products and services; and the capacity to manage and service the information technologies therein.

Should these capacities be built into information services provided in such libraries, they would have become the corner stone in our country's national development endeavours to this end. Therefore, this discuss is an effort to repackage expectations and deliverable services of medical libraries particularly in Nigeria and prompt such expectations for the rural populace to exploit as well as establishing an alert module for practicing medical librarians. It is a review that aims to draw attention to the importance of health information literacy (which could be provided by medical libraries in the country) and assumed to be a major tool to improving patients' health outcomes. It is an attempt to enhance the opportunities for health literacy for the ordinary citizens which could lead to contributing positively to national development. The discussion is presented as an opinion paper on roles, responsibilities, problems and prospects of medical libraries as outlets for health information literacy since they also dispense such for users' interests.

2. Study Objectives and Methodology

The objectives of this study are (i) to redefine and present the roles and responsibilities of medical libraries in Nigeria to attract the attention of the stakeholders, (ii) to examine problems hindering the performance of medical libraries in the country along this line and (iii) look at the prospects of these special libraries in achieving their expected social obligations in the Nigerian society. The methodological approach includes review and analysis of literature to arrive at suggestions and conclusions. The major research tool used is literary documents.

3. Library in the Contemporary Time

The online encyclopaedia (the Wikipedia) described the library in two distinctive parts. First, it was defined traditionally as a collection of books and in the contemporary time, it is defined as a collection of sources, resources and services organized to support teaching and research by the public, an organization, private individual or an establishment (<http://en.wikipedia.org/wiki/library>). The differential factor about library as defined in the contemporary time is in the collection of sources, resources and services. Resources here are the total means available for increasing production or

profit. This same meaning applies to library resources in terms of academic and research productivity. Therefore, library resources are assumed to aid teaching and learning including research in every nation of the world. The use of such resources in the dissemination of health information to rural populace in Nigeria is also expected to impact on health care awareness for the people of the country and as tools for the health care providers. Medical libraries are specialized libraries established in health institutions for the provision of information in aid of research, patients and scholars. The medical libraries are thus expected to play very important part in health information dissemination.

4. Review of the State of Health Information Literacy in Nigeria

In the works of Nutbeam (1998), the World Health Organization's definition of health literacy was given as a representation of the cognitive and social skills which determine the motivation and ability of individuals to gain access to understand and use information in ways which promote and maintain good health. Evidence of low health information literacy was reported earlier by the Institute of Medicine (2004) where it was noted that about ninety million people in the United States, had difficulty understanding and using health information. This health information illiteracy ranges from not understanding directives on the use of medicines; not understanding the need for consent forms or as have resulted in the prevalent use and abuse of drugs and drug-related substances.

Health education according to Glanz, Rimer and Levis (2008) has become a vital tool which plays a significant role in closing some of these knowledge gaps created due to disparities in social opportunities and is seen as most effective method of preventing disease other than any other intervention. It shapes the health behaviour of an individual which understandably has links to health outcomes (De Walt et al., 2004). So, because patients need access to impartial and high quality health information to make health decisions, providing health information as for Onotai (2008) is now at the core of health services provision.

Be this as it may, health information literacy levels in many societies of both the developing and the developed world have been described as low and seen as a contributing factor to poor health conditions. This condition is even truer of the Nigerian community where adult literacy rate is put at 66.8 percent (Nutbeam, 2008). Inadequate health literacy is therefore believed to be a factor responsible for a considerable proportion of individuals in rural communities in Nigeria failing to follow medical directives for health maintenance.

Accessible researched literature in Library and Information Science in the country has shown that in-debt research on issues bordering on health information literacy is still scanty. Atulomah and Atulomah (2012) and Egunjobi and Akerele (2014) have done studies on health information literacy; perceived-information needs and preventive-health practices in Nigeria and found that levels of health literacy is unacceptably low. In another study of health information literacy in Nigeria, Olaide (2013) has reported that the fall-out of the health information literacy is evident in the citizens' inability to locate health care providers and services as well as being unable to divulge information on health history. These studies all point to the fact that health information deficit in today's Nigeria could be an important causative factor in the observed low preventive-health actions prevalent in virtually all communities in the country.

5. The Gaps in Health Information Literacy and their Effect on the Nigerian Society

Arunachalam (2003) identified four major gaps for the least developing countries of the world which hinder their participation in the sharing of information and in the communication revolution. These include the following;

- Lack of affordable access to core information resources and telecommunication systems and infrastructure.
- Lack of the capacity to build, operate and manage the technologies involved.
- Lack of policies that could promote equitable public participation in the information society
- Lack of a trained workforce to develop, maintain and provide value-added products and services required.

To support the findings of Arunachalam (2003), the World Health Organization African Region report on Nigeria (2013), (http://www.who.int/countries/nga/areas/health_information/en/index.html) agreed that the participation of Private Health Facilities in the National Health Management Information System (NHMS) since its establishment in 1995 has been very low with untimely returns of poor quality data. The report showed that utilization of data is low and with little or no feedback information. This has shown and continued to show negative impact on healthcare services and health information in Nigeria.

This report which was put together two years to the target year of the Millennium Development Goals, 2015, indicated that there was yet to be a framework for the coordination of health research and related activities in Nigeria. Also in their own study, Watts and Ibegbulam (2005) had reported lack of ICT infrastructure and online access of information in Nigeria Colleges of Medicine. These evidences are enough gaps and reasons to have categorized Nigeria as under developed nation with respect to health information services and healthcare management. Therefore efforts geared towards correcting these gaps through provision and access of right information could promote the development of the country and impact health information literacy on rural Nigerians. To understand how medical libraries could impact on these needed health information literacy, we would look at their roles and responsibilities.

6. Roles and Responsibilities of Medical Libraries in the Provision of Health Information

Medical libraries are as important as the health information which they provide and there is obviously a growing demand for health care information by all. Thus, if the Librarian's primary role is to facilitate the ideals in the Library Bill of Rights, as specified by Hurych and Glenn (1987), this paper suggests the following roles and responsibilities for the medical libraries with a bias to the Nigerian state.

6.1. Influencing Knowledge Translation

Presently, the relationship between medical libraries, librarians and their clients has dramatically changed due to the rapid spread use of internet and digital communication advancements and information and communication technological developments across the world. Considering these, Muhamed (2011) had noted that the roles of medical libraries must change for them to be able to meet the new opportunities and challenges for accessing and utilizing health knowledge in this digital age. Consequently, the new role and or responsibility of medical libraries according to him may include; collaborating with universities and research centers to support knowledge translation and to provide evidence for policy and action through systematic and in-depth research as well as supporting staff training to build capacity in searching for and managing information resources.

6.2. Promoting the Generation and Storage of Knowledge in Terms of Information Resource Outlets

Just as new inventions in information technology have become the driving force affecting all aspects of librarianship – search, access, storage, retrieval and dissemination of information in medical libraries cannot be left out. As Sollenberger and Holloway (2013), rightly captured the trend; changes in medical information and technology are already revolutionizing health care delivery in all parts of

the globe. So the medical libraries as at today have to focus on how to develop and sustain reliable health information systems. Because access to information through any outlet is vital to health care delivery, medical libraries need to re-strategize on patterns of information synthesis sustainability and management (Rothstein, 1993).

6.3. Fostering of Communication and Interpretation of Health Information Packages for the Good of the Rural People

Medical libraries in Nigeria could also be converted into a knowledge center to manage the different types of knowledge found within some professional databases, institutional databases, and regional documentation databases. In so doing, it would give support to learning and research at the national, regional and international level thereby boosting access to information by the rural users from some initiatives like the Health Inter-Network Access to Research Initiative (HINARI), Reproductive Health Library (RHL), Global Health Library (GHL) and Health Evidence Network (HEN) et cetera. Medical libraries could as well manage networks of knowledge resources and centers and act as a hub to support access to health information since communication and sharing knowledge are integral part of their activities.

6.4. Providing a Platform for Standards in Health Information Dissemination for the Users and Producers of Information

Medical libraries being special in nature could be helpful in the establishment of standards and setting of norms for the provision of health information in the country which could be part of the national information policy. Since these libraries are concerned with information that have direct impact on life, they should be seen championing and contributing to the letters of health ethical issues, best practices and guidelines including the presentations in health information packages.

6.5. Supporting Research in Priority Areas in Health Sciences

The library is regarded as a centre for exchange of knowledge and a hub for academic activities because all educational processes revolve round it and their output are thereunto, preserved. Medical libraries in Nigeria should be seen to provide support anchored from this angle which would enhance developing a functional database that could serve for the National Health Management Information System and as well take cognizance of the health issues of the Millennium Development Goals (MDGs) as in reduction of child mortality, improvement of maternal health and fight against HIV/AIDS, malaria, and other diseases. In addition to this, medical libraries could support research by providing documentations in priority areas of health research in form of abstracts, compendia and translation booklets to aid reduction of risk factors and burden of diseases, improve health systems and promote health generally as a factor for development.

6.6. Encouraging Public Trust and Support for Free Access to Health Information through Collaboration

One of the principal services of a medical library is information dissemination to the needy. This sort of service could be arranged for interest bodies by a group of collaborating libraries through resource sharing in order to ensure availability of information for the profile needs of these interest groups. Since provision of funds is always the key problem to accessing information and achieving set objectives (e.g. best practices, quality assurance) amongst and between various bodies in the country, resource sharing plan supported by these special libraries could be encouraged so that such projected objectives of different stakeholders from different sectors of the economy could be achieved. Weldon (2005) had earlier noted that collaborations ensure medical libraries vitality.

6.7. Entrenchment of Functional Literacy

The medical library as a social instrument and a link to communication systems has the capacity to inculcate into the patrons, a functional literacy which will eventually lead to a live long ability in productiveness, self-reliance, quality assurance, competency and competitiveness in any given field and society. This could aid access to new trends on educational matters and would reshape the contribution of the patron to the society. This is even more desired in the African continent which has problem of internally displaced persons with varying literacy level.

7. Problems Affecting Medical Libraries in Nigeria

In Nigeria, certain issues affect the extent in which medical libraries could achieve their potentials as listed above. Some of these issues are so contagious that if not taken care of by instituted authorities, these special libraries may just be there as monumental structures. Thus, this part of the work, presents some of the factors that hinder the performance of medical libraries in the country.

7.1. Inadequate Literacy for the Digital Age

Despite some arguments, it could be accepted that problems exist of digital age literacy amongst librarians in tertiary institutions in Nigeria. There is lack of functional literacy ability to decipher meaning and express ideas in a range of media requiring the use of images, graphics, video, charts and graphs or visual images. Also, the technological literacy competence in the use of information and communication technologies of today, are somewhat lacking. This affects knowledge impact and health information dissemination and management. Most of the librarians in our medical libraries today were not trained with ICT facilities and as such, find it difficult to work with the technology.

7.2. Problem of Inventive Thinking

Since librarians of medical institutions in the country lack digital literacy, there seem to be also the lack of creative problem-solving and logical thinking that would result in sound and sound – reasoning judgments. In view of the foregoing, the ability to use imagination to create new things is highly limited. The desire to know, take risk or adapt and manage in a complex and interdependent world is often compromised. The resultant effect is the poor zeal to receive hands-on training on the ICT resources, the fear to make a change and adapt to the existing demand.

7.3. Cost of Health Information Resources

An aspect of the challenges facing medical libraries in the country is the cost of health information resources. Health information resources are media for teaching and learning programmes that require a large capital investment and this has been the problem of developing countries like Nigeria. As Oketunji et al. (2002) and Ani et al. (2005) have reported, the level of funding of university (tertiary institutions') libraries is relatively low and about 85% of the them do not have regular budgets that supports their medical libraries. This situation is worsened by the fact that most of the medical libraries have not initiated or are not allowed to initiate viable income generating strategies to supplement their meager funding.

7.4. Instability of Electrical Power Source

The use of ICT gadgets in medical library services for education (teaching, research and learning) in Nigerian tertiary institutions may not be achieved with the happenings in the supply of electrical power in the country. It is known that most of the ICT facilities use electrical power for operation and in Nigeria there is always a destructive interruption of power supply. The bad state of power supply in

the country is a great challenge to the use of ICTs for either library services or in any other sector including the economy. Automation of library operations in the country has been severely hindered by this factor as Idowu and Mabawonku (1999) had observed.

7.5. Lack of Technical Support Specialists

Some facilities and equipment especially, the ICT tools no matter how good they are at acquisition are bound to break down or fail in one time or the other. This has been happening in medical and other type of libraries and immediate remedy is always difficult to come by because of lack of technical support specialists. Technical support specialists are essential to the continued viability of ICT use in library services and in particular in medical libraries. The requirement for this depends ultimately on what and how technology is deployed and used. The general competencies needed according to Ugwuona, Oguike and Chukwu (2010) would be in installation, operation and maintenance of equipment, network administration and security but most often; they are not available in the third world countries. The work of Blurton (2007) reported an incidence of this nature from the Philippines, where disabled computers took months to be repaired because there was no technician in the vicinity and the computers have to be taken to the nearest city, hundreds of kilometers away from the users' location. One could only imagine the fate of library patrons in this circumstance.

7.6. Inadequate Basic Supporting Facilities

From the physical structures available in Nigeria, it could be taken that the country is deficient in the provision of a technological base that would support the use of information and communications technology resources for medical library services in her tertiary institutions. Some of these support facilities are the Local Area Network (LAN), the Wide Area Network (WAN), telephone and other utilities. Nigerian telecommunication networks have been found to be inefficient and less reliable than networks in other regions of the world as a result of several factor including power supply, telecommunication gadgets and the overall value system. In most of the institutions, these support facilities are either in bad condition or entirely lacking. With this condition, information dissemination using ICT resources in medical libraries would seem unachievable.

7.7. Problem of Lack of Acquisition Policy

Majority of the special libraries in Nigeria where Medical libraries are categorized do not have a working acquisition policy for their operations (Ugwuona and Dike, 2003). This could be a fundamental error at the point of their establishment since they are often carved out to serve the interest of a parent organization. This often leads to subjecting the medical library to the procurement plan of the parent organization at most cases.

7.8. Administrative Problems

This factor could also stand for managerial challenges or institutional weakness in the context of this work. Some developing countries in Africa have leaders and administrators with corrupt intents who weaken every effort made towards achieving good goals by looting and embezzling monies meant for developmental projects. Medical libraries in Nigeria have witnessed this problem and such intents have led to a retrospective growth and expansion of medical libraries in terms of collection building. In addition to this problem is the weak institutional framework to check the trend hence administrative problem is one of the principal challenges facing medical libraries in the dissemination of health information in Nigeria.

7.9. Uninsured Sustainability

Nigerian development history has shown that many projects and government/institutional programmes begin with a great hope but soon after fade out with a whimper. This history is also obtained in the Nigerian medical libraries. In several occasions, most of the ICT-based projects and resources available in the medical libraries are donor-based which are delivered with no plan to maintain or sustain. The donors may be national or international aid agencies or corporations and after their exit, not enough attention is paid for sustaining such gestures. This of course, is another challenge towards dispensing health information in the country.

7.10. Language Barrier

Medical information is often complex and are written at a level beyond what rural community members could understand. In a large community with diverse population with a mixed literacy level of information users, medical librarians are faced with problems of interpretation of the contents of information sources in a different language. In this case, language barrier becomes an obstacle and a challenge for information dissemination business since there will a hitch in access to desired information.

8. Prospects for Medical Libraries in Achieving These Expected Social Obligations

That Nigerians and indeed other nationalities need health information is a statement made in good faith. The more they are informed about specific health conditions, the healthier they become and able to find solutions to other economic and social needs. This part of the work is concerned with the potential services that the medical libraries could indulge in as to be able to dispense health information to the expectation of the citizens and impact positively to the growth of the nation.

- Medical libraries could establish an innovative feature that can encourage tele-medical information services which allows diagnosis through video workstation, as well as problem-based learning classrooms in which digital technology allows the public to view virtual realities and computer stimulated medical and health situations. Apart from this, use of telephone, electronic mails or webpages and creation of health links on the library's website could be useful for online services to the people.
- Medical libraries could also establish drug information database centres for their patron organizations which could be operated and maintained by the library to dispense health information.
- Medical libraries should be involved in the development of plain language booklets (for the people) to enable explanations of the science behind chronic illnesses like diabetes, hypertension, malaria, tuberculosis, sickle cell disease and asthma et cetera.
- Medical libraries in Nigeria could also run a hybrid library system which can serve to reduce limitations imposed by scarce resources and technological know-how. With information resources from HINARI, Reproductive Health Library, Health Evidence Network and similar others, access to medical information could be made easy on both electronic and hard copies for users. This would encourage many within the Nigerian communities.
- Medical libraries could also come together to form a consortium with allied partners in such areas like acquisition, resource sharing and networking so as to help in meeting the health information needs of consumers, majorly the rural people.

- Medical libraries could plan and operate some community services in partnership with health related non-governmental organizations through sponsorships, trainings, inter-library staff exchange programmes, resource loans and referral initiatives, just to provide services to consumers.
- Educational programmes on health care topics like blood pressure screening, health insurance counseling and other health talks could be initiated to take place in the libraries with invitation of experts in these areas to speak to interested clients and the patron community members.
- Support for publication of articles on local newspapers/bulletins written by library staff explaining which medical libraries offer health care information should be encouraged and sustained by medical libraries.

9. Conclusion

This paper has presented salient issues on health literacy with a critical look at the gaps in health information management in Nigeria as well as the potentials of medical libraries that could turn around their weaknesses into strength. Of all the types of libraries, medical libraries (also called Special or Research libraries) stand out as most relevant information centres that could reform citizens with social ailments. The Millennium Development Goal in respect of attaining good health in the country should be pursued vigorously so that if achieved, could be sustained even beyond the target year, 2015. Effort exerted during the Ebola period in Nigeria (April to August 2014) should be revisited in the area of access to health information for all.

This article gives a way forward but the constraint is that these types of libraries are not easy to come by in major part of rural areas of Nigeria. Sequel to this lapse, the work could only propose and encourage groups and government to support the establishment and extension of such libraries in all the three tiers of health facilities in the country. The citizens must also be encouraged to access the services of medical libraries as have been explained and become literate on their health matters. Medical librarians on their part should endeavour to aid citizens' access to health information in whatever form and means since 'health is wealth'.

The work is recommended for those in authority, librarians, library clients of all categories and the academic community in general.

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The Role of Agricultural Libraries in Literacy Education as a Prelude to Capacity Building among Rural Farmers in Nigeria

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Abstract Illiteracy among Nigerians, with its social and economic implications, has become a growing concern in recent years. National awareness of problems associated with limited literacy skills has led to legislation, beginning at the federal level, to fund new literacy programmes and expand existing programmes. Libraries and information centers are viewed as an important component of this massive educational effort, especially in the light of the fact that 75 percent of farmers in Nigeria are illiterate rural dwellers. A descriptive survey method was adopted for the study. Data collected was analyzed using descriptive statistics and presented in forms of tables and charts. The findings revealed that agricultural libraries have major roles to play in literacy education to rural farmers in order to build their capacity to produce technology based agricultural goods that will reverse the negative impact of agriculture on the Nigerian economy. Results also showed that rural farmers had farm related information needs, peculiar information sources, and the agricultural information gathered by farmers were used to meet production related needs. The role agricultural libraries can play in literacy education of rural farmers in Nigeria were enunciated to include providing information to the extension workers and repackaging agricultural information for the rural farmers in local languages and dialects where necessary. Information Communication Technology developments within the library that can impact on the generation and dissemination of agricultural information to farmers included dissemination of information on posters, use of digital white boards for interactive extension workshops and dissemination of current digital agricultural information from the internet among others. In conclusion, the agricultural libraries have the human and material resources to join the extension team to conduct research and give rural farmer necessary information needed to provide to achieve technology based agriculture that will help the Nigerian nation achieve food sufficiency and security. It was recommended that Agricultural librarians should consider joining the agricultural extension team. The repackaging of agricultural information accessible to the library via online as well as the offline sources should be considered by the librarians in liaison with the agricultural experts. The agricultural librarians should spearhead the advocacy that will ensure the establishment of public libraries in all the local government areas in Abia state as this will ease the access to information to these rural farmers.

Keywords *Agricultural Libraries; Literacy Education; Capacity Building; Rural Farmers; Nigeria*

1. Introduction

Agricultural sector in Nigeria has not been sufficiently productive to have a positive impact on the country's economy, this may not be unrelated to the fact that majority of the farmers are illiterate rural farmers (Ozowa, 1995). Meanwhile extension service to rural farmers is in disarray, weak and showing signals that they cannot anchor anticipated transformation agenda of government unless there are reforms. This has led to the recommendation of active engagement of skilled extension personnel for sustainable agricultural transformation. The agricultural librarian as the custodian and disseminator of information is well placed to join the extension team to ensure that literacy education is given to rural farmers to ensure that they appropriate technology to produce sufficient food to feed the Abian population and also create employment for the teaming unemployed youth. The librarian can use the various media in the library as part of the educational effort to ensure that learning and informational opportunity made available to these farmers is taken advantage off (Weingand, 1996). More so, libraries have both informational and educational functions, and the extent and department. of each function will vary depending on the library's perception of its mission and its community's needs (Hehlen, 1996). The definition of its mission causes each library to react differently to the needs of its users.

2. Objectives of the Study

The aim of the study is to investigate the role of agricultural libraries in literacy education as a prelude to capacity building among rural farmers in Nigeria

Specifically, it will discover the following:

- a. Discover farm related information needs of rural farmers;
- b. Examine the information sources of rural farmers in Abia state;
- c. Discover the extent of use of the disseminated agricultural information by farmers;
- d. Discover the reason for non-adoption or part adoption of production recommendation;
- e. Establish the role of agricultural libraries can play in literacy education of rural farmers in Nigeria;
- f. Discover the level of ICT developments within the library of universities of agriculture and what are their impacts on the generation and dissemination of agricultural information among researchers and extension workers, whose duty are to offer extension service to rural farmers.

3. Methods

A descriptive survey method was adopted for the study.

- All Academic Librarians and library officers of Michael Okpara University of Agriculture, Umudike and selected farmers from the 17 local government areas within Abia state, Nigeria where the university is domiciled and have extension services constituted the target population.
- Five farmers each were selected from each local government.
- The instrument for this study is Structured Interview schedule for the farmers and questionnaire for the librarians.
- The interview schedule was adapted from a Ph.D Thesis titled Evaluation of implementation of unified agricultural extension service in Abia and Akwa-Ibom states of Nigeria (Olajire, 2005) was the research instruments.
- A day each, usually the market day of area or a Sunday was used for the interview, in order to ensure the respondents are available.

- Data collected was analyzed using descriptive statistics and presented in forms of tables and charts.

4. Results

In all there were 85 farmer respondents and 22 librarians of academic and officer cadres. The response rate was 83 farmers and 22 librarians. Nine of the librarians were males while 13 were females. The farmers were 36 males and 47 females.

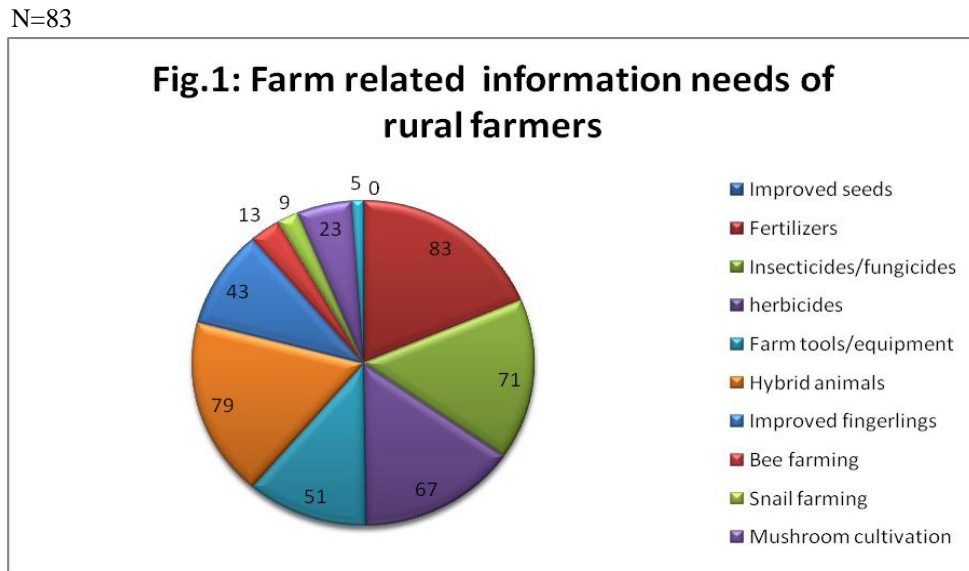


Figure 1: Farm related information needs of rural farmers

Farm related information needs of rural farmers were: Information on the fertilizers (83%), Insecticides/ fungicides (71%). Snail farming with was the least with 9% of the responders. Please Figure 1 for more details.

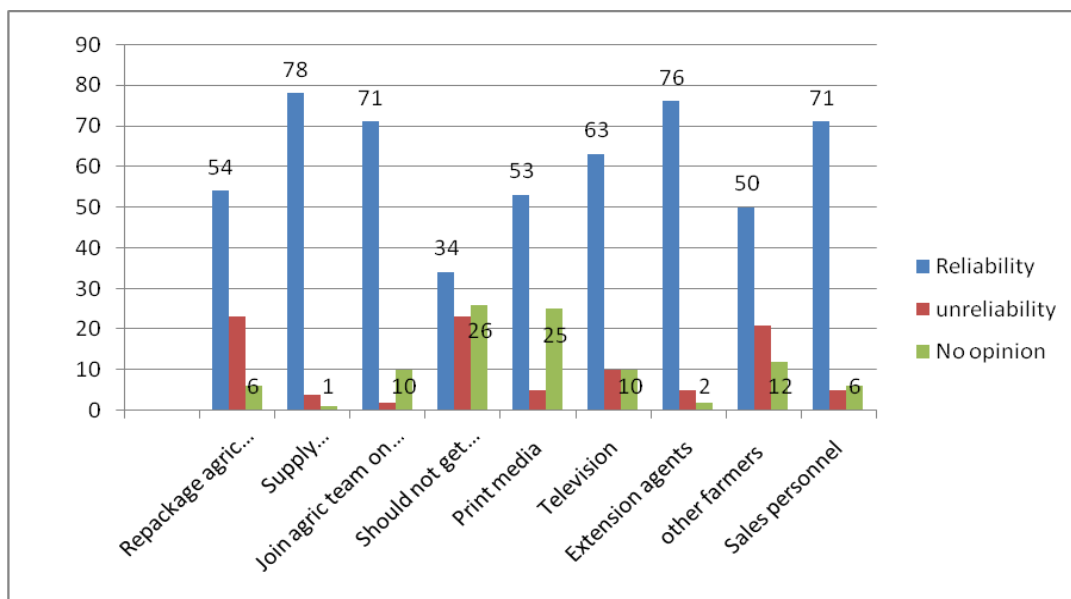


Figure 2: Rural farmers' sources of useful and reliable information

Rural farmers’ sources of useful and reliable information include:
 Rural farmers Sources of usefulness and reliable information include:
 Relatives and friends(79), Extension agents(23), Radio(81) and television(56)
 Print media(5personsie6.0%) other farmers(45) agricultural cooperatives (18) Sales person(29)

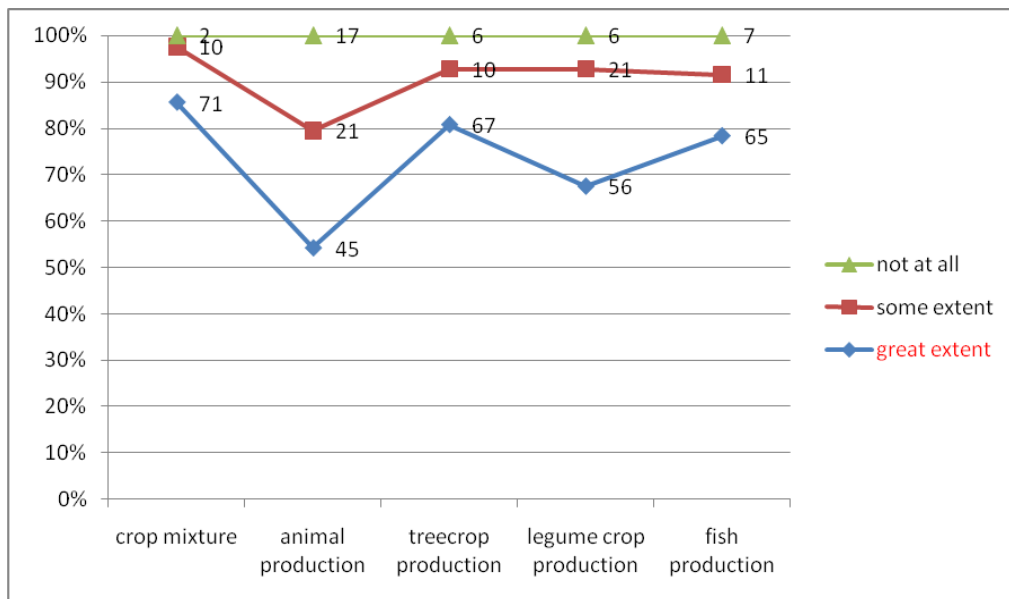


Figure 3: Source of information on production recommendation and extent of adoption

Source of information on production recommendation and extent of adoption revealed that crop mixture 71 respondents, while crop mixture had the greatest extent, while fish production had the least with 11 respondents.

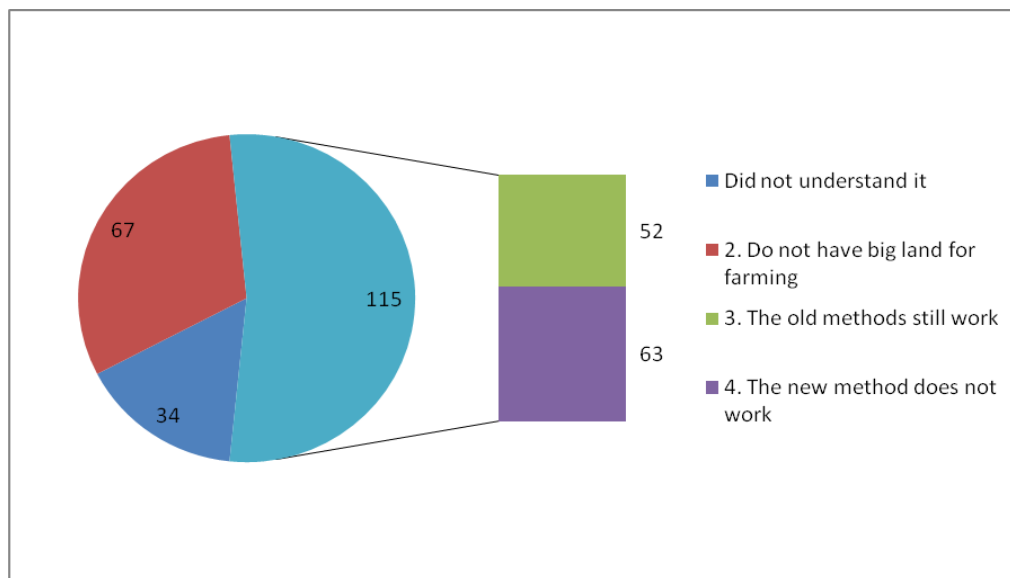


Figure 4: Reason for non-adoption of production recommendations

The reasons for non adOption of production recommendation included the following:
 The farmers did not understand it (40%), they do not have big land for farming (80.7%), the old methods still work (62.7%), and the new method does not work (75.9%)

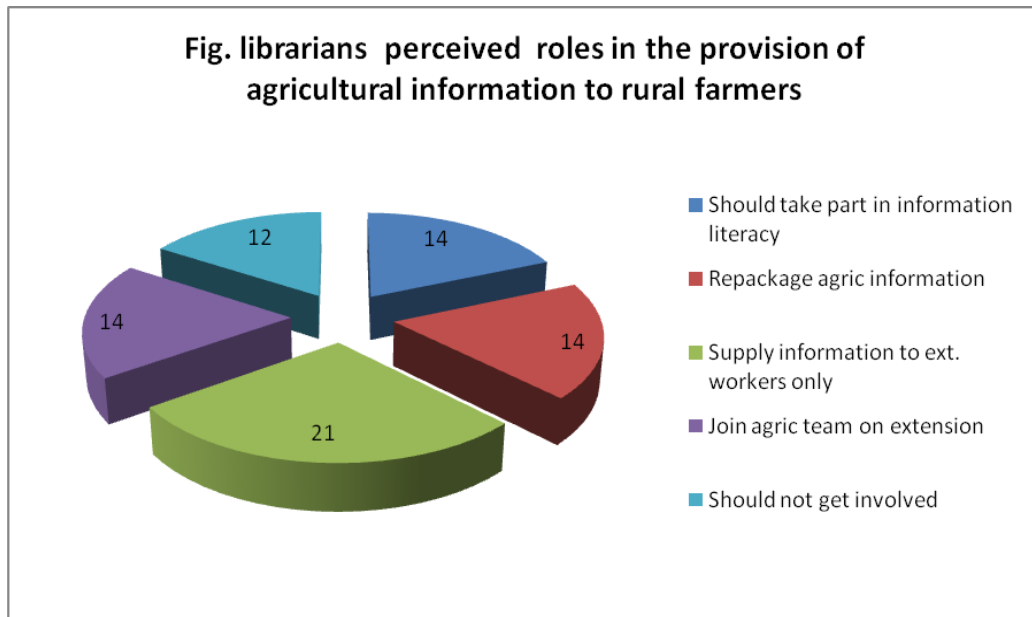


Figure 5: Source of information on production recommendation and extent of adoption

More than half of the librarians supported joining of the extension team by providing information to the extension worker and repackaging agricultural information for the rural farmer in local language if necessary.

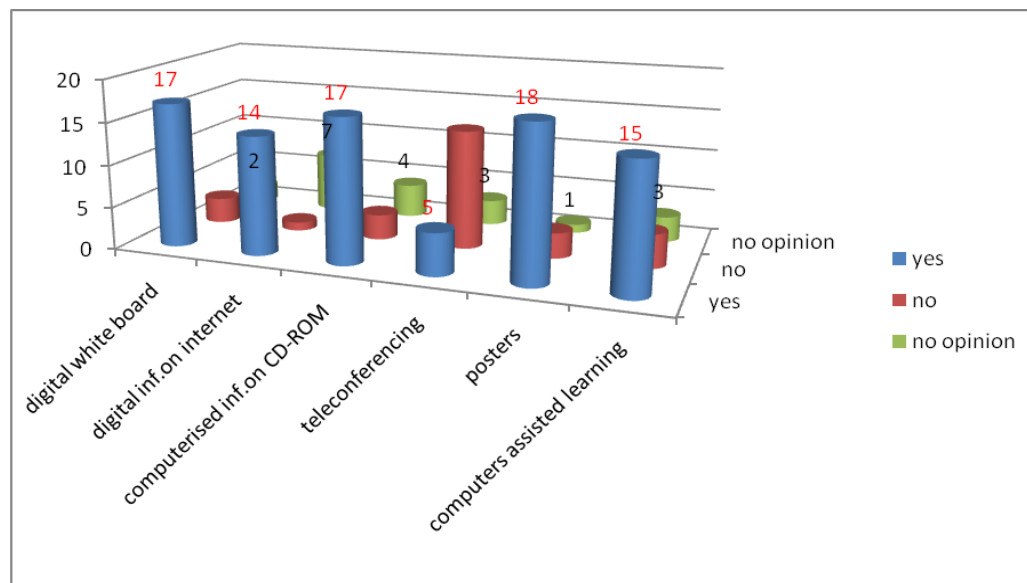


Figure 6: ICT developments within the library of the University of Agriculture and possible impact on the generation and dissemination of agricultural information to rural farmers

The ICT development within the Michael Okpara University of Agriculture, Umudike (MOUUA) agricultural- library is useful in the generation and dissemination of agricultural information to the rural farmers through use of

- ❖ Dissemination of information on posters sent to libraries from international organisation;
- ❖ Digital white board for workshops;
- ❖ Extracting computerised information of the CD-ROM;
- ❖ Teleconferencing was the least.

6. Discussion and Conclusion

The agricultural libraries have major roles to play in literacy education of rural farmers in order to build their capacity to produce technology based agricultural goods that will reverse the negative impact of agriculture on the Nigerian economy.

Descriptive survey method was adopted for the study. The findings showed that rural farmers had farm related information needs, peculiar information sources, and the agricultural information gathered by farmers were used to meet production related needs.

The role agricultural libraries can play in literacy education of rural farmers in Nigeria were enunciated to include providing information to the extension workers and repackaging agricultural information for the rural farmers in local languages and dialects where necessary (Nakazawa, 1993) Information Communication Technology developments within the library that can impact on the generation and dissemination of agricultural information to farmers included dissemination of information on posters, use of digital white boards for interactive extension workshops and dissemination of current digital agricultural information from the internet among others. This is in consonance with the findings of Edwin and Anie (2011) and Rathgeber (2000).

In conclusion, the agricultural libraries have the human and material resources to join the extension team to conduct research and give rural farmer necessary information needed to provide to achieve technology based agriculture that will help the Nigerian nation achieve food sufficiency and security. It is therefore recommended that:

- a) Agricultural librarians should consider joining the agricultural extension team;
- b) The repackaging of agricultural information accessible to the library via online as well as the offline sources should be considered by the librarians in liaison with the agricultural experts;
- c) The agricultural librarians should spearhead the advocacy that will ensure the establishment of public libraries in all the local government areas in Abia state as, this will ease the access to information to these rural farmers.

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Analysis of Final Year Students' Satisfaction with Information Resources and Services in Four Nigerian Federal University Libraries

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Abstract This paper examined user satisfaction amongst final year students in four federal university libraries in South-East Zone of Nigeria. A rating scale designed for this study was validated by two experts while its reliability test using Cronbach Alpha produced a coefficient index of $r = 0.86$. The availability sampling technique was used to administer 200 copies of the research instrument to respondents in each of the institutions surveyed. A combination of descriptive and inferential statistics was used for data analysis while frequency tables were used to present the results. The level of significance was tested at 0.05% through independent sample t-test. The findings revealed that graduating students are satisfied with the traditional library resources, reference services, photocopying services, as well as ergonomic-related facilities provided by libraries in their respective institutions. However, majority of these students expressed disappointment with the level of access to computers and other ICTs, irregular internet services, outdated textbooks, among others. The recommendations include: provision of access to computers and other ICT facilities and provision of adequate financial resources.

Keywords *Library Resources; Library Services; User Satisfaction; University Libraries; Federal Universities – Nigeria*

1. Introduction

The university library is the hub around which higher scholarship and advanced research activities revolve. It supports its parent institutions by acquiring conventional information sources such as textbooks and serials, as well as, specialized and unconventional materials which have both research and educational value (Smith, 2006; Yusuf & Iwu, 2010). Perhaps, the most-cited reference to the importance of a university library remains its description as the 'central organ a primary and most vital equipment of the university' by the University Grants Committee, United Kingdom in 1921 (Nwosu, 2000). The philosophy and principle behind the establishment of university libraries derives from the need to generate, organise, preserve and disseminate new knowledge for enlightenment and societal

development. Embedded in this primary objective is the urge to ensure that those who patronize the services of any university library satisfy their information requirements through available collections of documents, infrastructural facilities and human resources. This means that a university library that lacks the capacity to meet the information, educational and recreational demands of its users loses its relevance.

The liberalization of ownership of universities in Nigeria following the reforms of tertiary education sector has led to the emergence of three broad categories of universities. These types are usually determined by their proprietorship. Hence, there are now federal, state and private universities in the country. Statutorily, these tertiary institutions are established alongside their libraries. Aniebo (2004) explained that compared to other types of academic libraries, the university library holds a relatively larger collection and is better funded and staffed. It has also been observed that university libraries in Nigeria, like their counterparts elsewhere, occupy prominent positions in the provision of tertiary education. These libraries exist to provide such information services that enable their parent institutions achieve excellence in the performance of the tripartite functions of teaching, research and community services (Idiebgeyan-Ose et al., 2005; Eyo & Nkanu, 2009). Libraries in Nigerian universities are therefore conceptualized as dynamic and complex agencies saddled with the critical task of providing variegated information resources, as well as cross-matching of services to meet an assortment of information needs.

Several research reports, including Okeodion and Anaehobi (2014) and Nnadozie (2016) have drawn attention to the fact that the major users of the resources and services of universities in Nigeria are members of the academic community within these institutions. This is understandable considering the involvement of these intellectuals in various levels of scholarly pursuits, researches and knowledge generation. However, it has been established in a recent study by Ahmed, Romle and Mansor (2015) that use does not always presuppose satisfaction. It therefore becomes necessary to find out the extent or level of satisfaction with the resources and services of federal university libraries in Nigeria using a sub-set of the academic community. This study covers only four (4) universities owned by the Federal Government of Nigeria. These institutions are located in the South-East Zone of the country. Two (2) of them are specialized, namely: Federal University of Technology, Owerri (FUTO) (for Science and Engineering studies) and Michael Okpara University of Agriculture (MOUA), Umudike (for Agricultural Science and allied disciplines). The remaining two (2), which are conventional, are Nnamdi Azikiwe University (NAU), Awka and University of Nigeria, Nsukka (UNN).

2. Objectives and Research Questions

The main purpose of this study is to find out graduating students' satisfaction level in relation to the resources and services of federal university libraries in South-East Zone of Nigeria. Based on this, the following specific objectives were derived, viz, to:

- i. Find out the types of information resources used by final year students in the libraries under study.
- ii. Identify the kinds of information services provided to final year students.
- iii. Ascertain the level of satisfaction derived by final year students from resources and services provided.
- iv. Highlight the causes of final year students' dissatisfaction with available resources and services.
- v. Find out the consequences of final year students' dissatisfaction with resources and services.

Two (2) null hypotheses were tested in this study at 0.05% level of significance. They are:

H_{O1} : There is no significant statistical difference in the mean score of final year students' satisfaction with library resources in specialized and conventional federal universities.

HO₂: There is no significant statistical difference in the mean score of final year students' satisfaction with library services in specialized and conventional federal universities.

3. Review of Related Literature

Evaluating the use of library and information system, according to Ugah (2007), is one of the major concerns, and integral part of the duties, of library and information science practitioners. Oyewusi and Oyeboade (2009) explained that library services largely revolve around collections of textual matters and other bibliographic information sources. It also includes various information technologies like computers and the internet which support browsing, authoring and communication. It is worthy of note that with Internet and the availability of new technologies and numerous electronic indexes, abstract and databases, the range of services that academic libraries can provide has increased dramatically. In their study of information services provision and users' satisfaction in agricultural research libraries in Nigeria, Uganneya et al. (2012) observed that library and information professionals have provided a range of services including reference and circulation. These services facilitate the inter-change of library data, promote the inter-operability of library system and support national and international networking of libraries.

There has been a noticeable shift in the nature of information services provided in Nigerian academic libraries. Anunobi and Okoye (2008) captured this trend stressing that academic libraries no longer restrict themselves to print services such as collection development, cataloguing and classification, circulation and reference services, current awareness, selective dissemination, and other bibliographic services. This is in line with the result of a subsequent study by Okeodion and Anaehobi (2014) which showed that interlibrary services, document delivery, reference services and lending services were provided. Not only have these services been extended to non-members of the universities' immediate community, most of these libraries have stretched their efforts to interdisciplinary concepts like computer software and hardware, telecommunication engineering and Internet technology (Adeyemi, 2014; Awodele, 2014; Diyaolu et al., 2015). However, Afolabi and Abidoeye (2012) observed that most services provided in libraries are complemented by available facilities, some of which are technology-driven. This is the basis of the increasing technology application in the provision of library services to patrons in modern library systems.

Studies by Yusuf and Iwu (2010), Gunasekera (2010), Ababio et al. (2012) and Eiriemiokhale (2012) show that an overwhelming majority of their participants are satisfied with the resources and services provided in the surveyed institutions. On the contrary, Shafique et al. (2012) reveal that although respondents have shown their overall satisfaction with the major library services, the analysis of the data about users' satisfaction shows that they were not fully satisfied with their respective library services. This is a validation of an earlier report by Nnadozie (2008) in which students showed their displeasure with the resources and services in Nigerian academic libraries, especially, polytechnic libraries.

Ezeala (2009), in relation to effectiveness of library resources and services, argued that irrespective of whether the evaluation is quantitative or qualitative, parameters are set to be judged by users, who are in the best position to evaluate effectiveness of the library. She reported that more than three quarters of the respondents in her study indicated that the libraries are ineffective and this to her has the capacity to hamper the productivity of the research scientist. Respondents to the study by Okeodion and Anaehobi (2014) had a low perception of current awareness services (CAS), user education, internet services and exhibition/display of current materials as can be deduced from the low mean score of each of these services. Majid (as cited in Gunasekera, 2010) found out that the adequacy of collection, services, and facilities were closely linked to the perceptions of library effectiveness. The study stressed further that certain factors contributing positively to the perceptions of library effectiveness were: the adequacy and effectiveness of library promotion, involvement of

users in the selection of library materials, convenient library location, participation in user education programme, availability of assistance for using library resources and facilities and subject background of library professionals.

The effectiveness and efficiency of a university library is best measured by the extent to which library resources and services satisfy the needs of users. Thus, for a library to be worth its salt, the resources and services it renders must meet and satisfy the needs of its users. This fact is the thrust of the submission by Kebede (1999) who noted that performance evaluation of a library and information system or its components can be required for different reasons. For instance, the evaluation of the performance of library and information systems and the resulting data could be used to assess how well the system meets its objectives or justification of continuance of a service (Nnadozie, 2008).

It has been observed in separate surveys by Ezeala (2009), Oyelekan and Iyortsuun (2012) and Uganneya et al. (2012) that certain factors undermine the ability of academic libraries in Nigeria to satisfy their clients. Foremost of these factors that lead to system ineffectiveness are: gross underfunding of the libraries by their parent institutions; poor condition of essential services in the library such as photocopying machines, bindery equipment and inter-library cooperation; outdated library materials; irregular Internet services and staff irresponsiveness to users' information needs. These situations result to user dissatisfaction and low perception of the library by students (Nnadozie, 2008; Nwezeh, 2011).

Writing particularly about libraries funded by various state governments in Nigeria, Iwhiwhu and Okorodudu (2012) argue that these libraries can meet the satisfaction level of users if the following strategic approaches are adopted and implemented: adequate funds should be provided by the proprietors of these libraries to enable them acquire relevant information resources and ICT facilities and staff are expected to change their attitude to work and towards users and render the necessary assistance to facilitate information search and retrieval in order to satisfy their information need. In another study of a state public library, Ummunakwe and Nwachukwu (2009) suggested ways of improving libraries to make them perform all the expected roles and achieve 'education-for-all' goals in Owerri Municipal Council and these suggestions include: employment of knowledgeable and friendly staff, increased library vote, staging of rallies as a way of creating awareness, seminars and conferences, inter-library loan, consortium building and networking. Issa et al. (2015) harped on the need to expose undergraduate final year students to information literacy competency considering their heavy involvement with such academic engagements as assignment, term paper and writing of project report.

4. Justification for the Study

There is no doubt that there has been a sustained interest in user satisfaction in libraries. This claim is attested to, in part, by the volume of published reports reviewed for this study. Some of these works even focused on lecturers and students of tertiary educational institutions as the major components of the academic community within various universities. However, this general approach does not give room for adequate concentration on the specific sub-components of these user groups. The demographic differences amongst these user groups within the university academic environment may throw up variables that may make it difficult to generalize the results of studies done with one broad group or sub-group to others. This is more so with the student body that has distinct sub-populations. Besides their diverse socio-metric backgrounds, the differences in the courses of study and stages/level of their programme make it imperative that the extent of satisfaction among specific components of the student body be examined. Since final year undergraduate students are known to be major users of the resources and services of academic libraries because of their heavy academic engagements, it becomes particularly relevant to find out their satisfaction with the available

resources and information services. The review of available literature indicates that this aspect of scholarship has not been sufficiently investigated in Nigerian universities. This exposes a gap in the body of knowledge which is being filled by the present research. The result of this study will therefore provide the vital information for correlation analysis, as it further enriches the growing corpus of literature in user studies.

5. Methodology

The survey research method was adopted for this study while data was collected using a self-developed questionnaire. This customized research instrument is entitled: *Rating Scale for Final Year Students' Satisfaction with Information Resources and Services in Nigerian Federal University Libraries*. This instrument had Likert-type scales where Strongly Agree = 4, Agree = 3, Disagree = 2 and Strongly Disagree = 1. The validation was done by a University Librarian and a Statistician/Data Analyst while the reliability test with Cronbach Alpha produced a coefficient index of $r = 0.86$. Respondents were students in the final year of their respective bachelor's degree programmes selected through availability sampling during the 2014/2015 academic session. Two hundred (200) copies of the research instrument were distributed in each of the four (4) universities with the help of volunteer research assistants during the 2014/2015 academic session. Administration of the instrument lasted for two weeks in each institution and accounts for the return-rate of 690 (86.3%). A combination of descriptive and inferential statistics (mean and standard deviation) was used for data analysis while frequency tables were used to present the results. Independent sample t-test was used to ascertain the level of significance at 0.05%. The criterion benchmark for the study is 2.5 mean score. Table 1 shows the distribution and return-rate of questionnaire.

Table 1: Distribution and Return Rate of Questionnaire

| Institution | Distribution | Return | % Rate of Return |
|--|--------------|------------|------------------|
| Federal Univ. of Technology, Owerri (FUTO) | 200 | 172 | 86% |
| Michael Okpara Univ of Agric (MOUA), Umudike | 200 | 193 | 96.5% |
| Nnamdi Azikiwe University, (NAU), Awka | 200 | 170 | 85% |
| University of Nigeria, Nsukka (UNN) | 200 | 155 | 77.5% |
| Total | 800 | 690 | 86.3% |

6. Findings and Discussion

The analysis is presented in Tables 2-6 while the test of hypotheses is shown in Tables 7 and 8, respectively. The analysis in each table is followed by a summary of findings and brief discussion of the result in line with report of earlier studies.

Table 2: Mean Analysis of Information Resources Provided by Federal University Libraries (N = 690)

| Information Resources | FUTO | MOUA | NAU | UNN | Total x | Decision |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-----------------|
| Textbooks (Print) | 3.82 | 3.51 | 3.85 | 3.87 | 3.76 | Agree |
| Journals (Print) | 2.50 | 2.01 | 2.53 | 2.61 | 2.41 | Disagree |
| Electronic texts/Journals | 2.11 | 1.77 | 2.72 | 2.33 | 2.23 | Disagree |
| Reference Materials | 2.53 | 2.51 | 2.54 | 2.7 | 2.57 | Agree |
| Undergraduate Projects | 2.22 | 1.72 | 2.3 | 1.54 | 1.95 | Disagree |
| Postgraduate Theses | 2.10 | 2.32 | 2.14 | 2.11 | 2.17 | Disagree |
| Internet/Online Facilities | 2.13 | 2.25 | 3.12 | 2.22 | 2.43 | Disagree |
| Electronic Databases | 2.44 | 2.1 | 2.24 | 2.4 | 2.30 | Disagree |
| Others | 2.12 | 2.35 | 2.12 | 2.23 | 2.21 | Disagree |
| Grand Mean | 2.44 | 2.28 | 2.62 | 2.45 | 2.45 | Disagree |

Table 2 analyses the major types of information resources provided by federal university libraries and utilized by final year students. Out of the eight (8) specific information resources listed, the mean scores for six (6) were less than the criterion which signifies disagreement. These resources which were either absent or unavailable are journals (print), electronic documents, undergraduate projects, postgraduate theses, internet/online facilities and electronic databases. Although hard copies of textbooks and reference materials were provided judging by their mean values of 3.76 and 2.57, respectively, the grand mean score of 2.45 for Table 2 implies that respondents (final year students) consider the information resources provided as inadequate. The low mean scores for projects and theses may be a direct result of the fact that access to these materials is restricted in most university libraries in the country as a deliberate strategy to curb plagiarism. A major inference from this result is that libraries in Nigerian federal universities still anchor their services on textual and bibliographic sources which is in line with the submissions of Oyewusi and Oyeboade (2009) and Uganneya et al. (2012). However, the low mean scores recorded for e-documents, internet facilities and electronic databases point to the fact that university libraries in Nigeria are yet to fully migrate to e-platforms. This aspect of the result contradicts the findings of Adeyemi (2014) and Diyaolu et al. (2015) whose separate studies of selected university libraries in Western Nigeria revealed an impressive number of ICT facilities.

Table 3: Mean Analysis of Information Services Provided by Federal University Libraries (N = 690)

| Information Services | FUTO | MOUA | NAU | UNN | Total x | Decision |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|---------------|
| Current Awareness Services (CAS) | 3.71 | 2.8 | 2.74 | 3.52 | 3.19 | Accept |
| Lending services | 2.62 | 3.74 | 3.1 | 3.41 | 3.22 | Accept |
| Photocopying services | 2.51 | 3.13 | 3.22 | 3.42 | 3.07 | Accept |
| Bindery services | 2.13 | 2.01 | 2.44 | 2.24 | 2.21 | Reject |
| Reference Services | 3.42 | 2.83 | 2.81 | 3.03 | 3.02 | Accept |
| Readers' Advisory Services (RAS) | 3.14 | 3.04 | 2.7 | 3.41 | 3.07 | Accept |
| Abstracting/indexing services | 2.51 | 2.13 | 2.53 | 2.52 | 2.42 | Reject |
| Readers' orientation service | 3.80 | 3.41 | 3.01 | 3.63 | 3.46 | Accept |
| Electronic/online services | 2.41 | 2.13 | 2.22 | 2.31 | 2.27 | Reject |
| Book reservation services | 2.31 | 2.10 | 2.41 | 2.53 | 2.34 | Reject |
| Inter-library loan services | 2.43 | 1.32 | 2.1 | 2.42 | 2.07 | Reject |
| Grand Mean | 2.82 | 2.60 | 2.66 | 2.95 | 2.76 | Accept |

Table 3 shows the rating of information services provided by federal university libraries by final year students. Out of the eleven (11) items listed, six (6) met the criterion mean score while five (5) did not. However, the grand mean of 2.76 indicates that overall, the services provided by these university libraries are considered adequate. Specific information services like CAS, lending, photocopying, reference, RAS (or counseling), and library instruction/orientation have mean scores above the acceptance level. This indicates that these services met the expectations of final year students in the universities surveyed. On the other hand, bindery services, abstracting/indexing, electronic/online services, book reservation and inter-library loan services did not meet the criterion mean score which suggest that they are below the expectations of respondents. The result of this study buttresses the submissions of Anunobi and Okoye (2008) and Okeodion and Anaehobi (2014) to the effect that though libraries in federal universities provide basic information services, some of these are still below the required standard. It is equally necessary to point out that the result in Table 3 concerning online services validates the earlier report in Table 2 that electronic information resources and services are lagging behind in Nigerian university libraries.

Table 4: Mean Analysis of Satisfaction with Specific Resources and Services based on Responses to the following item statements (N = 690)

| Satisfaction with Resources/Services | FUTO | MOUA | NAU | UNN | Total x | Decision |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|-----------------------|
| Currency of available textbooks | 2.51 | 2.53 | 2.3 | 2.13 | 2.37 | Unsatisfactory |
| Available newspapers and magazines | 2.60 | 2.51 | 2.71 | 2.64 | 2.62 | Satisfactory |
| Photocopying services | 2.54 | 3.1 | 2.53 | 2.51 | 2.67 | Satisfactory |
| Available internet facilities | 2.51 | 2.5 | 2.11 | 2.31 | 2.36 | Unsatisfactory |
| Lighting system | 2.24 | 2.21 | 2.14 | 2.23 | 2.21 | Unsatisfactory |
| Adequacy of Staff | 2.54 | 2.13 | 2.1 | 2.5 | 2.32 | Unsatisfactory |
| Opening and closing hours | 2.05 | 2.12 | 2.31 | 2.41 | 2.22 | Unsatisfactory |
| Referral services | 2.14 | 2.23 | 2.21 | 2.24 | 2.21 | Unsatisfactory |
| Readers' Advisory Services | 3.10 | 2.94 | 2.65 | 3.12 | 2.95 | Satisfactory |
| Number of journals | 2.12 | 1.73 | 2.41 | 2.30 | 2.14 | Unsatisfactory |
| Duration of book loan | 2.11 | 1.71 | 1.52 | 1.52 | 1.72 | Unsatisfactory |
| Current Awareness Services | 3.01 | 2.52 | 2.62 | 3.12 | 2.82 | Satisfactory |
| Library instruction | 3.15 | 3.31 | 2.91 | 3.41 | 3.20 | Satisfactory |
| Binding services | 2.12 | 2.05 | 2.41 | 2.31 | 2.22 | Unsatisfactory |
| Grand Mean | 2.48 | 2.40 | 2.35 | 2.55 | 2.44 | Unsatisfactory |

Table 4 highlights the level of satisfaction with specific resources and services in federal university libraries. A frequency count of the research instrument shows that only 251 respondents (37.5%) were satisfied with the resources and services provided while majority of them (431 Or 62.5%) were not. The analysis of the responses shows that out of the fourteen (14) items listed, only five (5) items had mean scores that were above the criterion mark. However, the mean values for the nine remaining items were unsatisfactory as they fell below the accepted criterion. Consequently, the grand mean of 2.27 indicates that the majority of the final year students are clearly unsatisfied with most of the resources and services investigated. It is evident that newspapers/magazines, photocopying service, advisory and counseling service, as well as library instruction/user education were considered satisfactory by respondents. However, the more critical resources and services provided did not meet the expectations of majority of the graduating students in these universities. This can be seen in the mean scores for currency of materials, internet facilities, lighting system, adequacy of staff, opening/closing hours, referral services, number of journals, length of book loans and bindery services. This means that though federal university libraries provide textbooks and other reading materials, the volume and level of currency of these resources remain unsatisfactory. Moreover, a closer scrutiny of the result reveals that respondents from specialized universities were comparatively more satisfied than those from conventional universities. However, aspects of the result of this study validates earlier reports that users of university libraries in Nigeria are not fully satisfied with the resources and services provided (Nnadozie, 2008; Shafique et al., 2012; Issa et al., 2015).

Table 5: Mean Analysis of Causes of Dissatisfaction with Library Resources and Services (N=690)

| Causes of Dissatisfaction | FUTO | MOUA | NAU | UNN | Total x | Decision |
|--|------|------|------|------|---------|----------|
| Outdated information materials | 2.53 | 2.51 | 2.51 | 2.5 | 2.51 | Agree |
| Unavailability of needed materials | 2.51 | 3.22 | 2.8 | 2.63 | 2.79 | Agree |
| Unprofessional attitude of staff | 3.10 | 3.51 | 3.02 | 3.21 | 3.21 | Agree |
| Difficulty in locating materials | 2.72 | 2.8 | 3.01 | 2.52 | 2.76 | Agree |
| Location of the library | 1.63 | 2.01 | 2.03 | 2.1 | 1.94 | Disagree |
| Limited access to computer /ICTs | 3.23 | 2.91 | 3.40 | 3.11 | 3.16 | Agree |
| Inadequate reading space | 2.32 | 2.04 | 1.92 | 2.03 | 2.08 | Disagree |
| Inadequate ventilation | 2.01 | 2.1 | 2.31 | 2.42 | 2.21 | Disagree |
| Mutilation of documents | 3.13 | 2.82 | 3.01 | 3.41 | 3.09 | Agree |
| Restricted access to certain documents | 3.12 | 3.11 | 2.53 | 3.10 | 2.97 | Agree |
| Unsuitable opening/closing hours | 2.51 | 2.8 | 2.4 | 3.01 | 2.68 | Agree |

| | | | | | | |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Limited photocopying services | 2.40 | 2.13 | 2.40 | 3.11 | 2.17 | Disagree |
| Inadequate lending services | 2.93 | 2.74 | 3.21 | 2.83 | 2.93 | Agree |
| Irregular internet services | 2.50 | 2.61 | 3.03 | 2.6 | 2.69 | Agree |
| High cost of internet services | 2.53 | 2.84 | 2.71 | 3.13 | 2.80 | Agree |
| Epileptic power supply | 3.22 | 2.5 | 2.9 | 2.81 | 2.86 | Agree |
| Grand Mean | 2.65 | 2.67 | 2.68 | 2.72 | 2.68 | Agree |

It can be concluded from Table 5 that majority of the respondents agreed with twelve (12) of the sixteen (16) items listed as the causes for dissatisfaction with library resources and services. This conclusion is confirmed by the grand mean of 2.68 which is above the criterion mark. It is clear that the work ethics of library staff is a major determinant of satisfaction. This reflects in the mean score for 'unprofessional attitude of staff' as one of the causes of dissatisfaction. Other factors responsible for dissatisfaction with library resources and services amongst final year students in federal universities, as indicated in Table 5 are: outdated copies and unavailability of needed materials, retrieval difficulties, and restricted access to certain documents, unfavourable operating hours, limited lending services and inadequate internet services. The high mean value for limited access to computers and ICT gadgets suggests inadequacy of modern information technologies in these academic libraries. There is no doubt that most final year students need information materials/services for assignments, term papers, seminars and project research. The absence or inadequacies of these resources/services will naturally result in dissatisfaction. However, the distribution of items with low mean scores underlines the claim that Nigerian university libraries provide effective photocopying services. It also suggests that final year students have no issues with ergonomics-related factors like location of library, size of reading halls, ventilation and lighting. This is contrary to the result of another study in which these library ergonomic factors were identified by lecturers as responsible for user dissatisfaction (Nnadozie, 2016).

Table 6: Mean Analysis of Consequences of Dissatisfaction with Resources and Services (N=690)

| Consequences of Dissatisfaction | FUTO | MOUA | NAU | UNN | Total x | Decision |
|---|-------------|-------------|-------------|-------------|-------------|--------------|
| Reduction in patronage of libraries | 3.41 | 2.53 | 2.74 | 2.83 | 2.88 | Agree |
| Negative perception of librarians | 2.72 | 3.12 | 3.43 | 3.11 | 3.10 | Agree |
| Discouragement of others from using the library | 2.52 | 2.71 | 2.63 | 3.33 | 2.80 | Agree |
| Apathy towards the university library | 3.10 | 2.6 | 3.42 | 3 | 3.03 | Agree |
| Favourable disposition towards librarianship | 2.10 | 1.72 | 2.11 | 2.3 | 2.06 | Disagree |
| Enthusiasm to become advocates of libraries | 1.91 | 2.01 | 2.1 | 2.34 | 2.09 | Disagree |
| Increase interest in the services of other types of libraries | 1.52 | 1.34 | 2.13 | 1.72 | 1.68 | Disagree |
| Grand Mean | 2.47 | 2.29 | 2.65 | 2.66 | 2.52 | Agree |

Table 6 which examined the consequences of dissatisfaction with resources and services provided in federal university libraries shows that out of the seven (7) items raised, respondents agreed with four (4) based on their mean scores. It can be deduced from this result that dissatisfaction amongst graduating students will reduce their patronage of library services. This state of affair will also make them harbour negative perception of librarians, discourage other people from patronizing libraries and develop general apathy towards the university library. The grand mean of 2.52 indicates that majority of the respondents agreed with the listed items. This study contrasts with another research report which reported that respondents were satisfied with library resources and services and have developed a positive perception of library effectiveness (Gunasekera, 2010). The consequences of dissatisfaction among final year students are grave bearing in mind that these category of library users form the corps of future administrators, policy-makers, researchers, lecturers and other technocrats. When these young people develop a negative perception of librarianship, it would be difficult for them to be favourably disposed to the profession when they attain positions of influence and authority. The result of this study as presented in Table 6 implies that staff of university libraries should strive to leave a positive impression on graduating students through the provision of basic

working equipments and relevant reading materials. These resources should be complimented with qualitative information services.

7. Test of Hypotheses

HO₁: There is no significant difference in the mean score of final year students' satisfaction with library resources in specialized and conventional federal universities.

Table 7: *t-Test Analysis of Final Year Students' Satisfaction with Library Resources in Specialized and Conventional Federal Universities (N=259)*

| Variables | N | \bar{x} | SD | t-cal | df | t-crit | P-value | Remark |
|---------------------------|-----|-----------|------|-------|-----|--------|---------|---------------|
| Specialized universities | 157 | 2.43 | 0.14 | 0.898 | 257 | 1.646 | 0.396 | insignificant |
| Conventional universities | 102 | 2.33 | 0.20 | | | | | |

P > 0.05

It is necessary to explain that the raw score for the t-tests in Tables 7 and 8 was the 259 respondents that were satisfied with the resources and services provided in the university libraries under study. An explanation of this can be seen in the analysis of Table 4. Table 7 shows that the t-calculated value is 0.898 while the t-critical value at 5% significance level is 1.646. Since the t-cal (0.898) is less than t-crit (1.646), HO₁ is accepted. This test produces a 95% confidence that there is no significant difference in the mean score of first year students' satisfaction with library resources in specialized and conventional federal universities in Nigeria. This implies that the newer specialized universities in Nigerian are not significantly more equipped in terms of library resources than the older conventional universities. That explains the absence of any remarkable difference in the level of satisfaction amongst graduating students in both sets of universities.

HO₂: There is no significant difference in the mean score of final year students' satisfaction with library services in specialized and conventional federal universities.

Table 8: *T-Test Analysis of Final Year Students' Satisfaction with Library Services in Specialized and Conventional Federal Universities (N=259)*

| Variables | N | \bar{x} | SD | t-cal | df | t-crit | P-value | Remark |
|---------------------------|-----|-----------|------|-------|-----|--------|---------|---------------|
| Specialized Universities | 146 | 2.45 | 0.51 | 0.050 | 257 | 1.646 | 0.961 | insignificant |
| Conventional Universities | 113 | 2.46 | 0.48 | | | | | |

P>0.05

Table 8 shows that the t-calculated value is 0.050 while the t-critical value at 5% significance level is 1.646. Since the t-cal (0.050) is less than t-crit (1.646), HO₂ is accepted. The conclusion is that there is a 95% confidence that there is no significant difference in the mean score of final year students' satisfaction with library services in specialized and conventional federal universities. This implies that conventional universities in Nigeria are not significantly better than specialized universities in terms of library services. The similarity of library services in both types of federal universities accounts for the lack of any striking difference in the level of satisfaction amongst graduating students from these universities.

8. Conclusion and Recommendations

The findings of this study provide insight into the level of satisfaction by final year students in relation to the effectiveness of library resources and services provided in Nigerian university libraries. The students' level of satisfaction seems to be influenced by the adequacy of information services. Furthermore, the effectiveness of library services provided is hindered by factors such as lack of

access to computers and ICT facilities, inadequate internet services, inadequate infrastructural facilities, inadequate photocopying facilities, as well as, poor attitude of library staff. No doubt, various resources and services are provided but there is a gap in the provision of resources that has to do with the electronic environment. This explains the low level of use of online information resources. The test of hypotheses showed that final year students from the specialized universities were more satisfied than those from the conventional universities. Conclusively, if the level of satisfaction with resources and services provided in university libraries in the study location must increase, there is need for a shift from traditional library services to ICT and other electronic-driven services.

The following recommendations are put forward as measures for addressing the challenges in order to improve satisfaction amongst graduating students in federal universities:

- i. *General upgrade of basic infrastructural facilities:* University libraries cannot function effectively without some basic facilities. This study shows that most of these facilities are either inadequate or totally lacking. Infrastructural facilities like good shelves and air conditioners should be provided in the right quantity and quality for Nigerian university libraries. The regulatory bodies should pay attention to the accommodation sizes in these university libraries, as well as the suitability of available reading tables, chairs and other furniture. Again, a more reliable alternative source of power (maybe a standby generator) should be provided for each of these libraries since the public source of electric energy has proved most unreliable in recent years.
- ii. *Provision of access to ICT facilities:* The management and administrators of various university libraries in Nigeria should ensure that all ICT facilities that enhance the full functionality of the computer should be made available in university libraries. It is not enough to have these modern information technologies, it is imperative that they are accessed and utilized optimally by graduating students. Going by Ranganathan's *Laws of Library Science*, if books are for use and each reader should have the book that meets the specific need; it presupposes that in the present ICT era, *computers should not only be made accessible, they should be put to effective use*, especially by library patrons. Concerted efforts should be made to ensure that genuine and complete equipment are procured and installed because incomplete and dysfunctional ICT accessories are as good as not having them at all.
- iii. *Partnering with critical services providers:* The management of university libraries in collaboration with the parent institution should liaise with the book vendors, ICT merchants and journal subscription agents for the supply of current books and journals, as well as installation computers and allied gadgets at favourable payment terms and conditions. Internet Service Providers (ISPs) with proven record of delivering quality services at moderate fees should be approached for partnership agreement. These collaborative initiatives would ensure that quality services are provided in order to enable the graduating students take full advantage of accessing electronic information resources (EIR) as they contend with their various academic engagements. This is the only way out for university libraries as they struggle for relevance and sustainability in an era of diminished funding.
- iv. *Diversification of reprographic facilities:* Reprographic services provided by university libraries should not be limited to photocopying of documents. Rather, modern reprographic equipment such as printers, scanners, memory cards, flash drives, etc. should be made available to clients of Nigerian university libraries. This will make it easier for users to print downloaded information materials or copy and transfer same to their personal laptops within these libraries. In addition, the existing university binderies should be upgraded with state-of-the-art tools of the trade. The implementation of these innovations would not only enhance user

satisfaction amongst final year students, the revenue generation capacity of university libraries in Nigeria would be enhanced.

- v. *Re-orientation of library staff:* Periodic re-orientation and in-house training programmes should be packaged for the various cadres of staff that work in Nigerian university libraries. The management staff and other senior officials should let their professionalism show in the general comportment, especially in the discharge of their various assignments. These steps would help to improve their attitude of staff, across all strata, in the provision of library and information services within different university libraries.
- vi. *Proper funding of Nigerian university libraries:* At the root of the failings of university libraries in Nigeria is the issue of inadequate funding. Not only should the budgetary allocation for library services in universities be increased, the fund so approved should be released as and when due. When this is done, these libraries would then have the necessary financial resources to procure basic facilities, diversify their services and maintain basic equipment. Improved funding will definitely enhance the ability of Nigerian university libraries to deliver specific services targeted at special user-groups like final year students.

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Marketing Library and Information Services in Selected University Libraries in Africa

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Abstract The demands of modern information handling coupled with the advent of information and communication technology (ICT), which brings various competitors in information service delivery, demands an innovative approach from university libraries in reaching out to users, of which marketing is beneficial. This paper examines the strategies used by university libraries in Africa to market their resources and services to users and the problems experienced. The survey research design was adopted for this study. A questionnaire was designed and used for data collection. The purposive sampling technique was employed to select twenty (20) universities in Africa for the study. Findings revealed that university libraries in Africa, like their counterparts in other continents, creatively engage in marketing library and information services through various strategies. It was also found that the most frequently used strategies for marketing library and information services in African libraries are library publications (memos, bulletins, and newsletters), orientation exercises, website and flyers. The study equally revealed low level use of social media such as Facebook, blogs, Twitter, e-mail alerts for marketing. Absence of marketing plan, not knowing what to market, lack of facilities and lack of fund were mentioned by the respondents as some of the barriers in marketing library and information services. It was therefore recommended amongst others, that university libraries should design a workable marketing plan with total emphasis on the users; this will help in determining users' needs for effective and efficient library and information services delivery.

Keywords *Marketing; Information Services; Library Services; University Libraries; Librarians; Africa*

1. Introduction

In recent times, marketing of library and information services has become an integral part of the library and information service culture of most universities in developed countries. The challenges of budget cuts, increased user base, information explosion, rising costs, competition from database producers/vendors and complexity in user information requirements, wants and needs are forcing libraries to adopt marketing strategies to improve the management of library and information institutions (Madhusudhan, 2008).

Marketing library and information service is an established sub-set of management practices which identifies customer wants and needs and meets those needs within the resources of the organization (Gupta, Koontz & Massisimo, 2013). Marketing of library and information services has been anchored on relationship marketing (Besant & Sharp, 2000); internal marketing (Dworkin, 2003); image building (Bass-Bridges & Morgan, 2000) and customer loyalty (Gupta, 2003). For many others, marketing is the management process which identifies, anticipates and supplies customer requirements efficiently and profitably (Spalding & Wang, 2000).

Marketing is therefore all about identifying users' needs and developing strategies and services to reach out to them. It is a long-term innovative process that is entrepreneurially driven. Marketing in libraries was given a major boost with the introduction of the marketing concept in non-profit organization by Philip Kotler in 1970 (Andreasen & Kotler, 2007). Most library services and resources were not initiated and implemented from a marketing perspective. This went on for some time, until the first paper with the title, "Marketing of library and information services: how it all began" was presented at the 63rd IFLA conference by a Swedish author, Greto Renborg (Gupta, Koontz & Massisimo, 2006). Since then, there has been a steady growth in the literature of marketing library and information services; highlighting marketing practices and efforts in libraries from around the globe.

Libraries in developed world are increasingly aware of the need to market their products and services. Library and information products and services are now being presented as commodities that can be accessed, exchanged and even sold. Libraries are now seen as veritable information providers, rendering strategic services. The need for marketing therefore, cannot be over-emphasized. Additionally, marketing of library and information products and services have been given a major boost in ICT, especially with the advent of social networking media and sites. Therefore it is no surprise that more and more university libraries in developed countries are embracing social networking sites as a tool to promote and market library resources and services (Khan & Bhatti, 2012).

Kotler (1999) views marketing as the process of planning and executing the conception, pricing, promotion and distribution of goods, services and ideas to create exchanges with target groups that satisfy customers' and organizational objectives. This goes to show that marketing is not all about profit making, but about the satisfaction of customers. It involves a whole gamut of processes aimed at meeting customers' diverse needs and expectations as well as organizational goals and objectives. The library as a service providing institution can conveniently adopt these processes in meeting the overall needs of its users and parent body objectives.

Although there are several library and information resources and services in university libraries in developing countries, users are not adequately informed of the existence and benefits of these resources and services, thereby leading to low patronage of the library (Agaba, Kigongo-Bukenya & Nyumba, 2004).

It is against this background that this study attempts to find out if university libraries market their services and some of the strategies used. This study is also an attempt at enriching the literature. It will thus prove useful, helping both working librarians and future librarians to understand vital issues relating to marketing of library and information services at the local, national and international level.

2. Marketing within the Library and Information Environment

The arrival of the information age, where information provision is an increasingly important commercial activity, coupled with new technological developments bringing together hitherto disparate activities in information supply have led to a change in the role of libraries and librarians. More so, the

pressure on libraries from parent bodies to mobilize resources and be self-reliant, have been on the increase. Due to rising expectations, diverse needs and wants from library users, libraries are therefore finding new ways of serving users effectively. To this end, the application of general principles of marketing becomes imperative.

However, there is still considerable misunderstanding within the library and information environment as to what constitutes marketing. To some it is primarily equated with buying and selling. To others, it is viewed as production of brochures, advertising leaflets and low level marketing communication (Gupta, 2003). This misconception perhaps stems from the “free library culture” that libraries are not-for-profit institutions whose reason for existing is service rather than financial gain (Edewor & Omosor, 2012). Consequently, library personnel need not be trained in business models commonly employed in entrepreneurial ventures with the associated elements of financial risk and potential financial gain (Scanlon & Crumpton, 2011).

Traditionally, libraries have been engaged in marketing of library and information resources and services through display of new books, exhibitions, bulletins, user orientation programmes, production and issuance of library guides, library week outreaches and other publicity programmes. These activities are part of the promotional components of marketing. However, the demands of modern information handling, coupled with the advent of ICT, which brings various competitors in information service delivery, demands an innovative approach in reaching out to users, for which the above traditional strategies are no longer adequate. Therefore it is not surprising that more and more university libraries are embracing social media to promote and market library services.

Marketing is a process that involves systematic evaluation of users’ needs and designing information products and services to satisfy the needs. This calls for careful planning, analysis and identification of clients and their needs as well as the choices available for meeting these needs. This is done with a view to gaining superiority over competing alternatives. A successful marketing strategy identifies and gives the services required by the clients. As noted by Koontz, Gupta & Webber (2006) marketing is a process that you do over and over again, a tried and true systematic approach for matching services and products to a consumer’s wants, needs and desires. In the library and information environment, our patrons, clients and users are the customers. In other words, services and information products based on the needs and demands of users should be provided.

In this vein, Gupta (2003) argued that marketing of library services is the effective execution of all the activities involved in increasing satisfaction of users by providing maximum value to them. He categorized the different views of the concept of marketing of library services into four:

- Marketing a set of practical techniques and proven processes which can be applied to all aspects of the service planning, delivery and evaluation.
- Marketing as a philosophy: this is premised on the user as being the beginning and end of every marketing activity. The satisfaction of the user is the primary concern of marketing and everyone in the library has a role to play in rendering maximum satisfaction to the customer.
- Marketing as an approach: marketing in libraries is everyone’s concern. It is a total organizational effort and not a separate creation or the appointment of a marketing officer.
- Customer driven marketing: it is user satisfaction driven. It requires an in-depth understanding, greater intimacy and mutual trust among libraries and its users.

Marketable information-based products and services in the library include reference, referral, circulation, interlibrary loan, Selective Dissemination of Information (SDI), bibliographic information, abstract and indexing, customized research and development, current awareness, readers’ advisory, and information literacy services.

Baro and Ebhomeya (2013) carried out an empirical study of 20 university libraries in Nigeria; the objective was to identify the different strategies used in marketing library resources and services to staff and students. Respondents were asked to indicate the marketing strategies used in their libraries. Eighteen (81.8%) of the 22 respondents indicated that they used library publications, while 14 (63.3%) used campus radio programmes, 11 (50%) used university intranets and 9 (40.9%) e-mail alerts. Respondents also indicated using other marketing strategies such as orientation talks, seminar/workshops, library instruction in general studies, university bulletins, library week, newsletters, staff meetings and library committees. Only 8 libraries (36.4%) indicated using social networking sites such as Facebook, Twitter and MySpace to market the library resources and services to users.

Similarly, Dube (2011) revealed that to popularise and market library services in South Africa, libraries have a dedicated division for library marketing and works closely with the relevant university structures to ensure marketing of services to regular and potential clients by using sign posts and exhibitions, brochures, plasma screens, the library and university websites. She however, stated in her finding that only one library in particular uses services such as Ask-a-Librarian. Others conduct regular visits to academic departments while others market their services during training interventions, when they conduct client surveys and programmes scheduled during library week celebrations.

Commenting on the benefits of marketing library services, Spalding and Wang (2006) observed that by using marketing principles and techniques, librarians are discovering that they can understand better their users' needs, justify funding, communicate more effectively with a variety of external audience and achieve greater efficiency and optimal results in delivering products and services that meet the identified needs of their clients. Madhusudhan (2008) listed the benefits of marketing information by university libraries to include:

- Promotion of the use of information resources.
- Create perception of need and thereby create demand.
- Ensure the optimum use of information.
- Improve the image and status of the libraries and library profession.
- Tackle the problems of rising costs of reading materials, journals and databases.
- Cope with the information explosion.
- Introduce cutting edge information technology systems in library services.
- Balance shrinking funds.
- Save libraries from devaluation.
- Save libraries from declining reader support.
- Uphold the dictum that information is power.

Gupta, Koontz and Massisimo (2013) outlined several factors militating against the effective marketing of library and information resources and services, such as poor marketing strategy, absence of marketing policies, lack of skilled manpower and infrastructural constraints. Other militating factors include lack of funds to engage in marketing activities as well as lack of exposure to adequate marketing training in library schools (Baro and Ebhomeya, 2013). There is no gainsaying the fact that librarians should be exposed to adequate marketing training in order to drive the marketing process in university libraries.

University libraries need to identify target users, what services are required by these users and in what format as well as identify competitors in the information service business. User studies help university librarians to understand the needs of users to be able to design appropriate services for them.

3. Research Objectives

The objective of this study is to examine the strategies used in marketing library and information services in university libraries in Africa. University libraries in Africa were chosen in order to draw an overall picture of the strategies used in marketing library and information services across countries in Africa and also to provide these libraries with helpful information to better understand how their colleagues elsewhere are utilizing these strategies in rendering library services. Specific questions addressed are:

- To what extent are librarians in university libraries in Africa aware that they can market library and information services through various strategies?
- To what extent do librarians in university libraries in Africa use available strategies in marketing library and information services?
- What are the challenges faced by the librarians in marketing library and information services in university libraries in Africa?

4. Methodology

The descriptive survey research method was employed for this study. A questionnaire was developed and used for data collection. Items in the questionnaire cover areas such as extent to which librarians in university libraries in Africa are aware of marketing strategies, existence of marketing policies in university libraries in Africa, the extent to which librarians in university libraries in Africa use marketing strategies and the challenges the librarians face in marketing library and information services. The questionnaire was sent to libraries in university libraries in Africa via e-mail. Their e-mail addresses were collected from the institutions' websites. Librarians from twenty (20) leading universities in Africa participated in the survey. The universities were selected from the 2013 World University Web Ranking of top 100 universities and colleges in Africa (www.4icu.org/topAfrica). The questionnaire was forwarded to 333 librarians in the 20 university libraries in August 2014. Reminders were sent after one month, in order to whip up response. Data collection was completed in February 2015. A total of 140 respondents representing a response rate of 45% responded. The completed and returned questionnaires were downloaded, printed and used for data analysis. Descriptive statistics were used to analyse data and the results presented in tables.

5. Data Analysis and Discussion of Findings

Table 1: Responding Universities in Africa

| S/N | Name of University | Country | No. of Questionnaires Sent | No. of Respondents |
|-----|-----------------------------|----------|----------------------------|--------------------|
| 1 | Ahmedu Bello University | Nigeria | 12 | 5 |
| 2 | University of Cape Coast | Ghana | 16 | 6 |
| 3 | University of Khartoum | Sudan | 14 | 8 |
| 4 | University of Botswana | Botswana | 14 | 7 |
| 5 | University of Zambia | Zambia | 11 | 4 |
| 6 | Strathmore University | Kenya | 14 | 6 |
| 7 | Kenyatta University | Kenya | 24 | 8 |
| 8 | University of Kwazulu Natal | S/Africa | 19 | 5 |
| 9 | University of Cape Town | S/Africa | 9 | 3 |
| 10 | University of Dar es Salaam | Tanzania | 21 | 8 |
| 11 | University of Benin | Nigeria | 12 | 6 |
| 12 | University of Ibadan | Nigeria | 27 | 5 |
| 13 | University of Lagos | Nigeria | 12 | 4 |
| 14 | University of Limpopo | S/Africa | 21 | 11 |
| 15 | University of Ilorin | Nigeria | 19 | 6 |

| | | | | |
|----|------------------------|----------|-----|-----|
| 16 | Cairo University | Egypt | 22 | 11 |
| 17 | Makerere University | Uganda | 25 | 11 |
| 18 | Addis Ababa University | Ethiopia | 15 | 12 |
| 19 | University of Malawi | Malawi | 13 | 10 |
| 20 | Rhodes University | S/Africa | 13 | 4 |
| | | TOTAL | 333 | 140 |

Table 2: Demographic Information of Respondents

| Demography | No. | Percentage (%) |
|-----------------------------|-----|----------------|
| Gender | | |
| Male | 66 | 47.1 |
| Female | 74 | 52.9 |
| Total | 140 | 100 |
| Qualifications | | |
| Bachelors degree | 74 | 52.9 |
| Masters degree | 56 | 40 |
| Ph.D | 10 | 7.1 |
| Total | 140 | 100 |
| Job Title | | |
| Head of library | 8 | 5.7 |
| Asst/Deputy head of library | 5 | 3.6 |
| Senior librarian | 17 | 12.1 |
| Systems librarian | 22 | 15.7 |
| Librarian 11 | 56 | 40 |
| Librarian 1 | 5 | 3.6 |
| Assistant librarian | 27 | 19.3 |
| Total | 140 | 100 |

Out of the 140 respondents, 74 (52.9%) were females while 66 (47.1%) are males. Seventy four (52.9%) indicated that they were bachelor degree holders, 56 (40%) Masters degree holders and 10 (7.1%) are Ph.D holders in library and information science. Twenty seven (19.3%) of the respondents indicated their job title as assistant librarians, 56(40%) were librarian 11; 22 (15.7%) systems librarian and 17 (12.1%) senior librarians. Others are 8(5.6%) head of library and five (3.6%) assistant/deputy head of library and librarian 1 respectively.

Table 3: Awareness of Strategies for Marketing Library and Information Services

| Strategies | I know | % | I don't know | % | I only heard | % |
|----------------------|--------|------|--------------|------|--------------|------|
| Facebook | 81 | 57.9 | 41 | 29.3 | 18 | 12.9 |
| Orientation exercise | 125 | 89.3 | 7 | 5 | 8 | 5.7 |
| Library publications | 108 | 77.1 | 21 | 15 | 11 | 7.9 |
| Flyers | 105 | 73 | 23 | 16.4 | 12 | 8.9 |
| Posters | 104 | 74.3 | 25 | 17.9 | 11 | 7.9 |
| Twitter | 75 | 53.6 | 43 | 30.7 | 22 | 15.7 |
| Website | 93 | 66.4 | 25 | 17.9 | 22 | 15.7 |

The respondents were asked to indicate whether they know, don't know or only heard that the above mentioned strategies can be used to market library and information services. Orientation exercise was the most popular with 125 (89.3%) while 7(5%) admitted they don't know and 8 (5.7%) had only heard. One hundred and eight (77.1%) of the respondents indicated that they know that library publications can be used for marketing, while 21 (15%) admitted that they don't know and 11 (7.9%) had only heard. One hundred and five (73%) indicated they know about flyers been used for marketing, while 23 (16.4%) indicated they don't know and 12 (8.9%) had only heard about flyers. One hundred and four (74.3%) indicated that they know that posters can be used for marketing library

services, while 25 (17.9%) indicated they don't know and 11 (7.9%) indicated they had only heard about the possibility of using posters to market library services. Facebook, Twitter and website were the least known strategies with 81 (57.9%), 75 (53.6%) and 93 (66.4%), respectively.

Consistent with prior research (Gupta, 2003; Koontz, Gupta and Webber, 2006; Baro and Ebhomeya, 2013), this study affirms the position that university libraries in Africa, like their counterparts in other countries, creatively engage in marketing library services through various means such as library publications, flyers, orientation exercises, library web pages, posters, e-mail alerts, Facebook, blogs and twitter. However awareness needs to be created for the librarians to know that several more strategies can be deployed in marketing library services. This can be done through training workshops organized for librarians. This will in no doubt raise the level of awareness and usage among librarians in Africa.

Table 4: Use of Strategies for Marketing

| Strategies | 1= no use | 2= rarely use | 3= occasionally | 4= frequently | 5= very frequently |
|----------------------|-----------|---------------|-----------------|---------------|--------------------|
| Facebook | 45.7 | 17.9 | 16.4 | 7.9 | 12.1 |
| Library publications | 20.7 | 12.1 | 14.3 | 7.9 | 45 |
| Website | 30.7 | 15.7 | 17.1 | 16.4 | 20 |
| Orientation | 33.6 | 18.6 | 11.4 | 13.6 | 22.9 |
| Blogs | 50 | 13.6 | 14.3 | 15 | 6.4 |
| Twitter | 55.7 | 21.4 | 13.6 | 7.3 | 5 |
| e-mail alerts | 39.3 | 18.6 | 17.9 | 10.7 | 13.6 |
| Flyers | 39.3 | 19.3 | 9.3 | 14.3 | 17.9 |
| Posters | 39.3 | 12.1 | 12.9 | 18.6 | 17.1 |
| Radio | 65.7 | 17.1 | 10 | 5.7 | 1.4 |

Table 4 shows frequency of utilization of strategies by respondents. The respondents were asked to indicate their level of utilization of strategies in marketing library and information services based on a scale where (1) = no use, (2) = rarely use, (3) = occasionally, (4) = frequently and (5) = very frequently. The results show that the most frequently used strategy for marketing library and information service is library publications (45%), followed by orientation with 22.9%, website with 20%, flyers with 17.9% and posters with 17.1%. Other strategies mentioned were e-mail alerts with 13.6%, Facebook with 12.1%, blogs with 6.4% and Twitter with 5%. These strategies were indicated to be the least used by librarians.

The study revealed that the most frequently used strategies by librarians in university libraries in Africa are library publications (memos, bulletins and newsletter), orientation exercise, website, flyers and posters. This finding is in agreement with earlier studies (Baro and Ebhomeya, 2013) that the most frequently used strategy by librarians in marketing library and information services in Nigeria is library publications. This is also true in Zambia, South Africa and Kenya where publications, website and orientation exercise respectively, is predominantly used to promote library services (Benda, 2011; Bosch, 2009; Chisenga, 2012).

The study also revealed low level usage of social media in marketing library services across Africa. This is in agreement with Lwoga (2011). He specifically focused on the potential of social media in marketing library services. Libraries in developing countries can use social media as a better marketing tool. It is instructive to note that social networking media and sites have attracted the attention of university libraries around the world for promoting and extending their resources and services. The study reveals the low level usage of social networking media such as Facebook, blogs, Twitter and e-mail alerts for the purpose of marketing library and information services in Africa. The reason for this may be connected to the unwarranted fear of adjusting to the paradigm shift in marketing library services to users because of traditionalist values as well as unsubstantiated fear of

possible security breaches to libraries online and integrated systems (Rogers, 2009). The use of social networking media is still in its embryonic stage in Africa. According to Dickson and Holley (2010:469) social networking by university libraries has the potential to reap great results. Gupta (2003:100) specifically mentioned that Twitter can be used by libraries to inform the library users about major events, activities and recent acquisitions through posting photo and links to resources about the library. It is sad to note that many university libraries in Africa still prefer the traditional environment to extend library and information services. University libraries in Africa need to change and adapt to the requirements and wants of “customers”.

In order to know the hindrances encountered in marketing library services in university libraries in Africa, respondents were asked to indicate the challenges faced, 82.1% indicated absence of marketing plan, while 80% indicated not knowing what to market, followed by 75.7% indicating lack of facilities and 70% indicating lack of fund.

For university libraries to effectively market their services in order to attract more users, in this digital era, the need for a robust marketing plan cannot be over emphasised. University libraries have a responsibility to design and implement a robust marketing plan that will guide the entire marketing process. This can be done in conjunction with various stakeholders – users, administrators, relevant government agencies etc. Seminars, workshops and symposium can be organized in relation to this to equip librarians with relevant set of skills for the effective design and implementation of a workable marketing plan aimed at delivering appropriate information products and services in university libraries in Africa.

Not knowing what to market is rooted in the absence of a well formulated marketing plan. As noted by Kumbar (2004), there is lack of familiarity with marketing concepts among librarians. This perhaps is as a result of the misunderstanding among librarians as to what constitutes marketing. Most librarians view marketing from buying and selling perspective, hence they don't know what to market. There is therefore the need to re-orient librarians as to what really is marketing in library and information science and its associated benefits.

Lack of facilities such as computers, printers, scanners is another major barrier. This finding agrees with Rehman and Shafique (2011) that lack of ICT facilities were the main hindrances towards effective marketing in libraries in Pakistan. Internet connectivity with adequate bandwidth in university libraries in Africa is a pre-requisite for effective marketing. In Nigeria for instance, only a few university libraries have stable and reliable Internet connectivity, despite directives from the Nation's Universities regulatory agency – National Universities Commission (Baro & Asaba, 2010). Also, lack of fund is another challenge identified. From the design to implementation requires adequate funding to succeed. A huge financial resource is required to design, implement and sustain the entire marketing process.

6. Conclusion and Recommendations

The purpose of this research is to examine the strategies used in marketing library and information services in university libraries in Africa. It is aimed at investigating whether librarians market their services and what are the strategies used as well as barriers encountered in an attempt to market library services. The results of the study show that university libraries market library and information resources and services using various strategies such as flyers, library publications (memos, bulletins, newsletters), orientation, posters, websites, radio, twitter, e-mail alerts, Facebook, and blogs. The results equally show that the most frequently used strategies for marketing library services is library publications, orientation exercises, and website. It also emerged that the use of social media such as Facebook, Twitter and blogs were at minimal level. Also the study revealed absence of marketing plan, not knowing what to market, lack of facilities and lack of fund as some of the barriers that hinder

university libraries in Africa from effective marketing of library and information services. There is therefore the need for university libraries to adapt more systematic and innovative approaches in determining user's needs in order to design appropriate strategies and services to meet their wants and needs. To this end university libraries should design a workable marketing plan with total emphasis on the users. This will help in determining users' needs for effective and efficient information service delivery. Information and communication technologies with stable Internet connectivity should be put in place by university libraries to be able to reach a wide audience of users. Also Social networking media should be embraced and vigorously used in marketing library products and services by university libraries because the benefits quite outweigh the cost. Library schools should update the curriculum to incorporate entrepreneurship and business models involving marketing.

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Information Seeking Habits of Software Professionals in Pune Region

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Abstract This study investigates the information seeking patterns and types of information sources used by software professionals which are in Pune region of Western India. The study employed the descriptive research method, using questionnaire for data collection. The present study shows that software professionals have been shown more affection to Library collection: also they preferred Non print material with Internet. Software professionals are using Internet as a media to get the information which is followed by online databases.

Keywords *Information; Information Seeking; Information Seeking Habits; Software Professionals; Internet*

1. Introduction

The information-seeking habits of software professionals are of interest and importance to special librarians/Information officers. While concerned with improving access and use of information, tends to focus more on emerging electronic services than exploring existing needs. No studies, however, have been conducted primarily about software professionals. The new ways of information seeking are connected with new thinking methods and new problem solving approaches. Software professionals in all disciplines need certain background knowledge and skills in information seeking to incorporate the ideas and techniques of information processing into their stream.

2. Definitions

2.1. Information

Shera (1972) defines, "Information is that, which is transmitted by the act or process of communication, it may be a message, a signal, and a stimulus. It assumes a response in the receiving organism and therefore, possesses response potential."

2.2. Information Seeking

According to Kuhlthau (2004) “The process of construction within information seeking involves fitting information in with what one already knows and extending this knowledge to create new perspectives.”

Case (2002) defines information seeking as “a conscious effort to acquire information in response to a need or gap in your knowledge.”

2.3. Information Seeking Behaviour

Information behaviour encompasses information seeking as well as the totality of other unintentional or passive behaviours (such as glimpsing or encountering information) as well as purposive behaviours that do not involve seeking, such as avoiding information (Case, 2002). The phrase Information-Seeking Behaviours has been defined variously by different Information Seeking Behaviour of Students Natarajan TRIM 8 (2) July-Dec 2012, 102 authors. According to Krikelas (1983) information seeking behaviours refers to — any activity of an individual that is undertaken to identify a message that satisfies perceived needs.

Wilson (2000) defines that information seeking behaviour is the purpose of seeking information as a consequence of a need to satisfy some goal. In the course of seeking, the individuals may interact with manual information systems (such as a newspaper or a library) or with computer based systems (such as the web). According to him, a general model of Information behaviour needs to include at least the following elements: “an information need and its drives, i.e. the factors that give rise to an individual’s perception of need, and the process of actions involved in that response”. Normally people used to study small groups via Observation or unstructured interviews. They have moved away from studying large groups via questionnaires and structured interviews. They attempt to generate information-seeking model. The studies have been conducted for occupational groups and for social roles and demographic groups. They are carried out by the following:

- Quantitative research
 - Used predominately until the 1980s
 - Provides statistical information
- Qualitative research
 - Richer data
 - Does not start with hypothesis
- Mixed methods
 - Combination of qualitative and quantitative approaches

3. Objectives of the Study

- Identify and study Information requirements of Software professionals.
- Identify & study the standard sources being referred by various experts in multiple domains of IT industry.
- To find out various media used by software professionals to get information.
- To find out problem faced by professionals while seeking information.
- Prepare inputs for librarianship in IT services.
- Compare few standard sources being used.

4. Research Methodology

Descriptive research method has been applied for the present study. The questionnaire has been distributed to the software engineers to receive their information seeking modes. The data has been collected through the questionnaire as a tool for data collection. Collected primary data has been analyzed and interpreted under various headings.

5. Scope of the Study

This scope of the study is limited only for the software professionals who are working in a Pune region of Western India. The questionnaires will be distributed among 400 software professionals out of which only 365 respondents favorably responded, 35 respondents does not responded to it in the process of collection of primary data for the present study.

6. Review of Literature

Rupp-Serrano and Robbins (2013) The author founds that the information seeking behavior of academic education faculty from twenty large public research universities. It includes an examination of how frequently education faculty seek or access the information, how they stay up-to-date on current developments in the field and identify less recent journal literature, how valuable library resources and services are to their information needs, and the importance of library research to the fields of education. The responses from the survey participants emphasize the importance of electronic access to scholarly journals and library databases and the continuing value of books, both print and electronic, for meeting the information and research needs of education faculty.

Robbins and Engel (2011) Studies of information-seeking behaviors are common in the professional literature for library and information studies. This study examines the generalizability of findings of single- institution studies to other institutions by performing an institution-to-institution comparison of the results obtained from an information-seeking behavior survey sent to engineering faculty at twenty research institutions

Natarajan (2012) He traced the most important aspects of Information seeking behaviour of the students, for whom the library and information centers are being maintained. It deals with the libraries of management institutions in National Capital Region (NCR) of Delhi. A detailed questionnaire has been circulated and the data analyzed in relation to the availability of information services, the frequency of visits to the library, the gender wise distribution of questionnaire, the nature and type of information required, the major information services used, the purpose of information seeking and the level of satisfaction.

Jamali and Nicholas (2008) Author founds that the two aspects of information seeking behaviour of physicist and astronomers including methods applied for keeping up-to-date and methods used for finding articles. The relationship between academic status and research field of users with their information seeking behavior. The study reveals differences among subfields of physics and astronomy in terms of information-seeking behaviour, highlights the need for and the value of looking at narrower subject communities within disciplines for a deeper understanding of the information behaviour of scientists.

7. Data Analysis

7.1. Age Group

To get the Information about the age group of the respondents. The question has been asked and collected information is as in Table 1.

Table 1: Age group of respondents

| Sr. No. | Age | Frequency | Percentage |
|--------------|-------------|------------|------------|
| 1 | 22-26 | 159 | 43.56 |
| 2 | 27-31 | 147 | 40.27 |
| 3 | 32-36 | 41 | 11.23 |
| 4 | 37-40 | 3 | 0.82 |
| 5 | No Response | 15 | 4.11 |
| Total | | 365 | 100 |

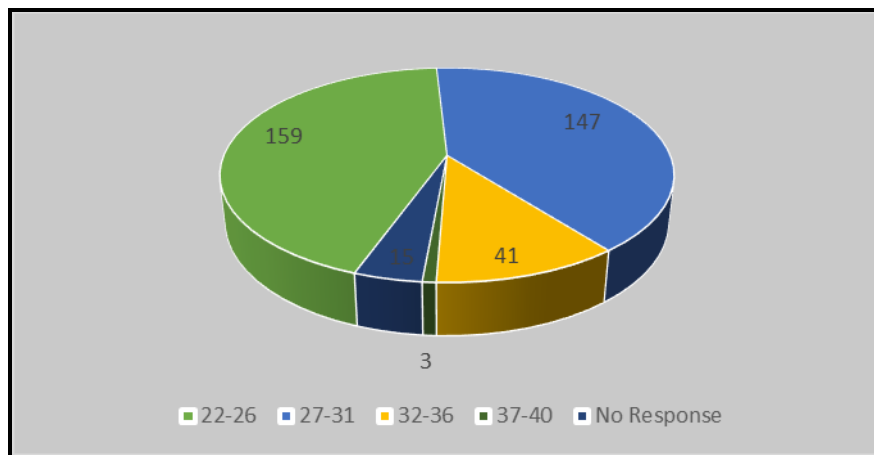


Figure 1: Age group of respondents

Table 1 and Figure 1 indicate that out of 159 respondents majority of them belongs to 22-26 age group. The second largest category of the respondents belongs to the age group of 27-31.

7.2. Language

To get the Information about the Languages known of the respondents. The question has been asked and collected information is as in Table 2.

Table 2: Languages known

| Sr. No. | Language Known | Frequency | Percentage |
|---------|----------------|-----------|------------|
| 1 | English | 363 | 99.45% |
| 2 | Hindi | 362 | 99.18% |
| 3 | Marathi | 285 | 78.08% |
| 4 | Any Other | 28 | 7.67% |
| 5 | German | 4 | 1.10% |
| 6 | French | 3 | 0.82% |
| 7 | Japanese | 2 | 0.55% |
| 8 | Russian | 0 | 0.00% |
| 9 | Chinese | 0 | 0.00% |

Table 2 shows that 363 i.e. (99.45%) professionals knows English, 362 i.e. 99.18 followed by Hindi Language, whereas 2 i.e. 0.55% professional knows Japanese.

7.3. Information Require

Table 3 shows the information require by the professionals

Table 3: Kind of Information Require

| Sr. No. | Kind of Information | Frequency | Percentage |
|---------|---|-----------|------------|
| 1 | Technical information(Technology related) | 310 | 84.93 |
| 2 | Software Requirement Specification(SRS) | 266 | 72.88 |
| 3 | Company/Client profile | 161 | 44.11 |
| 4 | Domain Information | 81 | 22.19 |
| 5 | Market analysis | 60 | 16.44 |
| 6 | Any others(Please specify) | 0 | 0.00 |

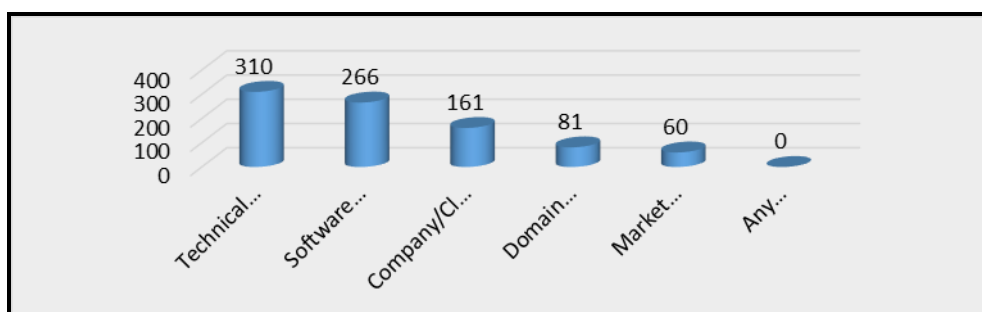


Figure 2: Kind of Information Require

Table 3 & Figure 2 shows that, 310 i.e. (84.93%) Software professionals are using Technical Information, and 266 i.e. (72.88%) software professionals are using Software Require Specification (SRS) whereas 60 i.e. (16.44%) Software professionals are using Market Analysis.

7.4. Sources of Information

Table shows the sources of information used by the software professionals

Table 4: Sources of Information

| Sr. No. | Sources | Rank | Total Response | Percentage |
|---------|-------------------------------|------|----------------|------------|
| 1 | Internet | 1 | 331 | 90.68 |
| 2 | Online Database | 2 | 303 | 83.01 |
| 3 | Expert | 3 | 297 | 81.37 |
| 4 | Supervisors(PM/TL/PL) | 4 | 292 | 80.00 |
| 5 | Library Resources | 5 | 279 | 76.44 |
| 6 | Colleagues(Institution) | 6 | 243 | 66.58 |
| 7 | Library catalogue | 7 | 223 | 61.10 |
| 8 | Librarian/Information Officer | 8 | 192 | 52.60 |
| 9 | Library Staff | 9 | 147 | 40.27 |
| 10 | Conference/Workshops/Seminar | 10 | 140 | 38.36 |

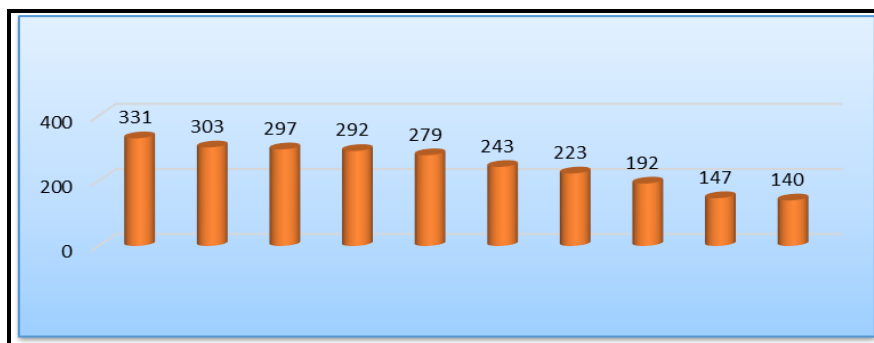


Figure 3: Sources of Information

Table 4 and Figure 3 depicts that the 331 i.e. (90.68%) of software professionals use Internet as sources of information in first rank position and 303 i.e. (83.01%) professionals use Online Databases as sources of information in second rank position of whereas 140 i.e. (38.36%) professionals use Conference/Workshops/Seminar as a sources of information in last i.e. tenth position.

7.5. Media

Information about the Medias used by software professionals. The question has been asked and collected information is as in Table 5.

Table 5: Media used by the professionals

| Sr. No. | Media | Frequency | Percentage |
|---------|----------------------|-----------|------------|
| 1 | Internet | 355 | 97.26 |
| 2 | Books | 341 | 93.42 |
| 3 | Newspaper | 315 | 86.30 |
| 4 | Journals/Periodicals | 272 | 74.52 |
| 5 | Website/Portals | 157 | 43.01 |
| 6 | Training & Workshops | 114 | 31.23 |
| 7 | Video Conferencing | 68 | 18.63 |
| 8 | Teleconferencing | 39 | 10.68 |

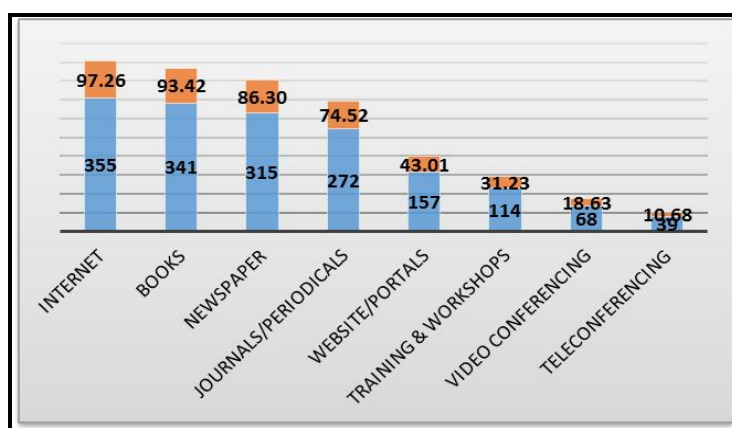


Figure 4: Media used by the professionals

Table 5 & Figure 4 shows that 355 i.e. (97.26%) professionals use Internet a media and to get the information and 341 i.e. (93.42%) professionals use Books, whereas 39 i.e. (10.68%) professionals use Teleconferencing as a media & to get the information.

7.6. Problems Faced by Software Professionals While Seeking Information

Table 6 shows that difficulties/problems faced by the professionals

Table 6: Problems faced by the professionals

| | High | % | Low | % | Medium | % | No response | % |
|--|------|-------|-----|-------|--------|-------|-------------|------|
| Inadequate Library services | 161 | 44.1 | 23 | 6.3 | 163 | 44.65 | 18 | 4.96 |
| Information not readily available | 133 | 36.43 | 40 | 10.95 | 169 | 46.3 | 23 | 6.3 |
| Information is scattered in too many ways | 81 | 22.19 | 90 | 24.65 | 174 | 47.67 | 20 | 5.47 |
| Interdisciplinary nature of Literature | 82 | 22.46 | 71 | 19.45 | 187 | 51.23 | 25 | 6.84 |
| Lack of time for searching | 153 | 41.91 | 40 | 10.95 | 152 | 41.64 | 20 | 5.47 |
| Lack of access to library material due to library rules/procedures | 135 | 36.98 | 37 | 10.13 | 174 | 47.67 | 19 | 5.2 |
| Lack of co-operation from the library staff | 117 | 32.05 | 65 | 17.8 | 160 | 43.83 | 23 | 6.3 |
| Understanding project requirement | 108 | 29.58 | 60 | 16.43 | 178 | 48.76 | 19 | 5.2 |
| Lack of domain knowledge | 110 | 30.13 | 59 | 16.16 | 180 | 49.31 | 16 | 4.38 |
| Language Problem | 63 | 17.26 | 83 | 22.73 | 202 | 55.34 | 17 | 4.65 |

Table 6 indicates that Inadequate Library Service and Lack of time for searching are the major difficulties in searching the information.

7.7. Input Requires from Library

Table 7 shows that inputs required from Library. The question has been asked and collected information is as below.

Table 7: Inputs Requires from Library

| Sr. No. | Inputs | Frequency | Percentage |
|---------|-----------------------------|-----------|------------|
| 1 | Alerting Service | 275 | 75.34 |
| 2 | Availability of E-Resources | 157 | 43.01 |
| 3 | CAS/SDI | 127 | 34.79 |
| 4 | Reprographic Service | 21 | 5.75 |

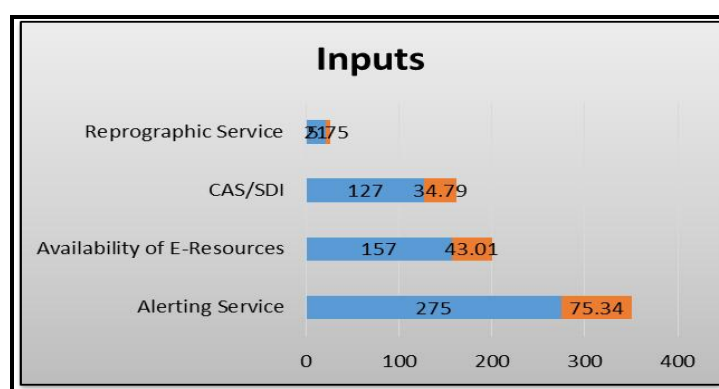


Figure 6: Inputs Requires from Library

Table 7 & Figure 6 Shows that 275 i.e. (75.34%) professionals require Alerting service as inputs from Library and 157 i.e. (43.01%) professionals require Availability of E-Resources as inputs from Library, whereas 21 i.e. (5.75%) professionals require Reprographic service as inputs from library.

7.8. Standard Sources (Print Sources)

Table 8 shows that print sources used by professionals

Table 8: Print Sources

| Sr. No. | Print Source | Frequency | Percentage |
|---------|----------------|-----------|------------|
| 1 | Book | 352 | 96.44 |
| 2 | Reference Book | 193 | 52.88 |
| 3 | Year Book | 97 | 26.58 |
| 4 | Periodicals | 83 | 22.74 |
| 5 | Newsletter | 46 | 12.60 |
| 6 | Directories | 43 | 11.78 |

Table 8 shows that 352 i.e. (96.44%) professionals are using book as a source in print format and 193 i.e. (52.88%) professionals are using Reference book as a source in print format whereas 43 i.e. (11.78%) professionals use Directories as a source in print format.

7.9. Standard Sources (Non-Print Sources)

Table 9 shows that Non-print sources used by professionals.

Table 9: Non-Print Sources

| Sr. No. | Non-Print Sources | Frequency | Percentage |
|---------|-------------------|-----------|------------|
| 1 | Web | 349 | 95.62 |
| 2 | A/V Material | 329 | 90.14 |
| 3 | Online databases | 284 | 77.81 |
| 4 | PDF Files | 216 | 59.18 |
| 5 | E-books | 175 | 47.95 |

Table 9 shows that 349 i.e. (95.62%) professionals are using Web as a source in Non-print format and 329 i.e. (90.14%) Professionals are using PDF Files as a source in Non-print format followed by 284 i.e. (77.81%) Professionals are using Online databases whereas 175 i.e. (47.95%) professionals use E-books as a sources in Non-print Format.

Table 8 & 9 shows that as compare to print sources Non-print sources are mostly referred.

8. Findings

- In the age group analysis, out of 365 respondents 159 i.e. 43.56% belongs to 22-26 age category. Whereas 147 i.e. 40.27% belongs to 27-31 age category.
- It is found that 363 i.e. (99.45%) professionals knows English, 362 i.e. 99.18% followed by Hindi Language whereas 2 i.e. 0.55% professional knows Japanese.
- It is seen that, out of total no. of respondents 310 i.e. (84.93%) professionals requires Technical information whereas 60 i.e. (16.44%) requires Domain information.
- It is found that, total no. of respondents 331 i.e. (90.68%) professionals use Internet which occupies first position whereas 140 i.e. (38.36%) professionals use Library staff in last position.
- It is seen that, 355 i.e. (97.26%) professionals use Internet as a media whereas 39 i.e. (10.68%) professionals use Teleconferencing.
- Table 6 and Figure 4 indicate that Inadequate Library Service and Lack of time for searching are the major difficulties in searching the information.

- It is observed that, out of 275 i.e. (725.34%) professionals need Alerting service whereas 21 i.e. (5.75%) professionals need Reprographic service.
- It is axiom that, out of 352 i.e. 96.44% professionals use book as a standard sources whereas 43 i.e. (11.78%) use Directories.
- It is seen that, 349 i.e. 95.62% professionals use Web as a standard sources in Non-print material whereas 175 i.e. (47.95 %) use E-books.

9. Conclusion

- It is observed that maximum respondents belongs to 22-26 age category.
- From the above Result it is found professionals knows English language followed by Hindi & Marathi.
- It is seen that, out of total no. of respondent i.e. software professionals requires Technical information.
- Professionals use Internet as a source of information for getting the information.
- It is also seen that professionals use Internet as media to get the information.
- Inadequate Library Service and Lack of time for searching are the major difficulties in searching the information for the professionals.
- Alerting service and Reprographic services is the input required by software professionals.
- It is axiom that professionals use book and Web print and non-print material respectively.

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Demographic Determinants of Quality of Work Life of Librarians Working in Nigeria

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Abstract Information and communication technologies have brought profound change in the work environment of library professionals. Changes can bring uncertainty, fear and dissatisfaction. The purpose of the study was to measure the Quality of Work Life of librarians and to ascertain the relationship with some demographic characteristics. Respondents are 175 librarians working in various library types in Nigeria. A Quality of Work Life scale was used to collect data for the study. Findings show that Quality of work life of librarians in the study is relatively high in areas of opportunity for continued growth and security, social integration in the work organization, and social relevance of work. However, important areas such as fair remuneration, training and retraining, provision for job performance and equal right issues were areas of dissatisfaction for the librarians. Findings also show significant relationship between Quality of Work Life and gender, age, institution type and years of work experience. There was no relationship with educational qualification. Essentially, librarians' Quality of Work Life need to be a positive one in all areas and for all concerned for job retention and good productivity. It is therefore imperative that librarians map out advocating strategies to improve their work environment and also ensure adequate compensation. This will help increase their Quality of work life in this digital era.

Keywords *Quality of Work Life; Job Satisfaction; Job Security; Job Attitude; Employee Engagement*

1. Introduction

Work is an everyday engagement of the individual. Librarians are in a service oriented profession and their main role definition is providing information to satisfy users' needs. Information and communication technology (ICT) has brought profound changes in the work environment of library professionals. It has introduced new modes and formats of access to information which has revolutionized information dissemination in such a way that access is no longer a prerogative of the library institution. ICT also brought in additional roles and skills needed to harness the new tools. Change can bring uncertainty, fear and dissatisfaction. It can affect the way we perceive our roles in the scheme of things and impact negatively on psychological wellbeing generating job stress and dissatisfaction [1]. Opinions on the effect of technology on libraries have not always been positive with uncertainty being expressed on the future roles of libraries in the Google generation [2]. Some

librarians feared they would no longer be needed as library users would be able to use the Internet without their help [3]. These uncertainties on the expectations of libraries, ambiguity of roles, the need to improve one's skills or acquire additional skills are presented as sources of stress to the librarian in the technology driven environment [4]. Samdani and Deshmukh [5] noted that in today's fast-paced world of high technology, stress has become an inevitable part of life irrespective of the profession. Stress can lead to negative perceptions and reactions to the work environment such as dissatisfaction, ill-health, and low productivity. For the library organization to retain a productive workforce, librarians' sense of job security and social relevance need to be a positive one. The degree to which employees feel secured and satisfied with their work environment is a measure of their Quality of work life.

1.1. The Concept of Quality of Work Life (QWL)

Quality of work life is a construct that determines the employees' attitude, perceptions and feelings surrounding the work environment and how the work life satisfies the total life aspiration. Shamir & Salomon [6] defined Quality of Work Life (QWL) as a comprehensive construct that includes an individual's job related wellbeing and the extent to which work experiences are rewarding, fulfilling and devoid of stress and other negative personal consequences. According to Ahmad, [7] QWL is generally associated with a series of objective organizational conditions and practices that enable employees of an organization to perceive that they are virtually safe, satisfied and have better chances of growth and development as individual human beings. Heskett, Sasser and Schlesinger [8] were of the view that QWL is the feelings that employees have about their jobs, co-workers and organization in general that act as a catalyst resulting in the organizations growth and profitability. A positive feeling towards their job reflects that the employees are happy doing work and a satisfying work environment increases productivity. An individual's perceptions of his job meeting life's aspiration and the social and physical environment of the job determines to a large extent satisfaction on the job [9]. This can drive productivity and job performance [10].

1.2. Measures of Quality of Work Life

Several factors in the work environment contribute to employees' Quality of work life and they relate to favourable work conditions. The European Foundation for the Improvement of Living and Working Conditions [11] related QWL to job satisfaction, job acceptance, motivation, health, security, safety, productivity, job security, skill development, well-being and balance between work and non-work life. QWL cover factors such as wages and other benefits, working environment and conditions, work structure, work organization, management and organization of work, technology, employee satisfaction and motivation, industrial relations, participation, employment security, social justice and social security, demographic structure and continuing education [12]. Walton [13] presented eight criteria for measuring QWL. They include: Adequate and fair compensation, Safe and healthy environment, Opportunity to use and develop human capacities, Opportunity for career growth: Constitutionalism: Work and quality of life and Social relevance.

A number of studies have explored the Quality of work life of librarians. Aziz, Nadzar, Husaini, Maarof, Radzi and Ismail [14] found that both work variables and non-work variables do matter in determining the QWL of librarians. Somvir and Kaushik [15] found that the percentage of library professionals in Haryana State having high level of QWL is significantly high.

Librarians in Nigeria like their counterparts in other countries face the same challenges associated with technology, innovation, stress and pressure in the work place. The research sought to determine the extent these factors affect their work life balance. Quality of work life of librarians in this study was assessed using Watson's [13] criteria.

2. Objectives of the Study

The purposes of the study were to:

1. Measure the Quality of work life of Librarians working in Nigeria
2. Investigate the relationship between Quality of work life of librarians and some demographic characteristics such as gender, age, educational background, institution type, and years of work experience.

2.1. Hypotheses

- H1. Quality of work life of librarians is significantly related to gender.
- H2. Quality of work life of librarians is significantly related to age.
- H3. Quality of work life of librarians is significantly related to educational qualification.
- H4. Quality of work life of librarians is significantly related to years of work experience.
- H5. Quality of work life of librarians is significantly related to institution type.

3. Methods

The survey research method was used for the study. Questionnaire which included a Quality of Life Scale was used to collect data. The Quality of Work Life scale (α .880) was developed based on Walton [13] Quality of work life model. The study scale has six dimensions and 13 items. The scale was on a five point Likert-type metric (1-strongly disagree, 2-disagree, 3-undecided, 4-agree, 5-strongly agree).

Questionnaires were hand distributed to librarians during four National conferences/workshops held by Nigerian Library Association and sub-sections from June 2013 to April 2014. These include: National Conference of Nigerian Library Association held in Calabar Cross River State, Library and Information Technology Today (LITT) national workshop held in Rivers State, LRCN National workshop on Free and open Source Software and the AWLIN National Conference held in Awka. A total of 175 usable copies of the questionnaire were obtained and the respondents were from sixty-nine institutions domiciled in various part of the country. They include 24 University libraries, 9 Polytechnic libraries, 8 College of Education libraries, 13 Public libraries and 17 Special / Research libraries.

3.1. Method of Data Analysis

Descriptive statistics were calculated for QWL. Mean score was used to determine the Quality of Work Life of the respondents. Since the QWL scale is based on a five point scale, items with a mean score of 3.50 and above were regarded as high QWL and items with a mean score of below 3.50 were regarded as low QWL. Independent sample t-test was used to examine the relationship between gender and QWL. One-way ANOVA was employed to determine the relationship between Quality of work life and other demographic variables. Scheffe Post Hoc test was conducted for significant results. All hypotheses were tested at $p < .05$ significant level. All calculations were done using SPSS version 17.

4. Results

Respondents' demography

Analysis of respondents' demography shows that 61.7% (108) of the respondents are females while males are 32% (56). Eleven respondents did not state their gender. More than half the respondents

were aged 30-44 (58.9% n=103). 51 (29.1%) were aged 45-60; 16 (9.1%) were aged 20-29. In terms of educational qualifications, 85 (48.6.0%) have master's degree; 59 (33.7%) have Bachelor's degree. 17 (9.7%) have Postgraduate Diploma and 10 (5.7%) have PhD. For years of Work experience, 53 (30.3%) had worked 11 - 20 years; equal number 39 (22.3%) had worked for 1 - 5 years and 6–10 years respectively and 34 (19.4%) had worked 21 years above.

4.1. Quality of Work Life of Librarians

Librarians were asked to rate their quality of work life on a five point scale of strongly agree (5) to strongly disagree (1). Result is shown in Table 1.

Table 1: Quality of Work Life of Librarians

| S/N | | Strongly Agree/ Agree | % | Strongly Disagree/ Disagree | % | Mean | Std. Dev. |
|--|--|-----------------------|------|-----------------------------|------|------|-----------|
| Adequate and Fair Compensation | | | | | | | |
| 1. | My salary is commensurate with my work in the library | 85 | 48.6 | 54 | 30.8 | 3.31 | 1.25 |
| 2. | My overall pay and allowance is equal to my peers in other departments of the organization | 69 | 39.4 | 73 | 41.7 | 3.00 | 1.32 |
| Opportunity to use and Develop Human Capacities | | | | | | | |
| 3. | I have opportunities to deploy my skills for the institution | 125 | 71.4 | 20 | 11.5 | 3.86 | 1.00 |
| 4. | I am satisfied with the training and retraining I receive in order to perform my present job | 80 | 45.7 | 59 | 33.7 | 3.21 | 1.26 |
| 5. | My employer provides me with what I need to do my job effectively | 77 | 44.0 | 59 | 33.7 | 3.16 | 1.19 |
| Opportunity for Continued Growth and Security | | | | | | | |
| 6. | The work I do in library will remain relevant in future | 157 | 89.7 | 8 | 4.6 | 4.35 | .85 |
| 7. | I have job security - there is no fear of losing my job in future | 141 | 80.6 | 13 | 7.4 | 4.10 | .91 |
| Social Integration in the Work Organization | | | | | | | |
| 8. | I have good relationship with my colleagues in the work place | 164 | 93.7 | 10 | 5.7 | 4.45 | .64 |
| 9. | My colleagues are reciprocal in sharing knowledge and expertise | 124 | 70.9 | 25 | 14.3 | 3.81 | 1.02 |
| Constitutionalism in the Work Organization | | | | | | | |
| 10. | I am not denied any thing that is my right because I work in the library | 96 | 54.9 | 52 | 29.7 | 3.38 | 1.27 |
| 11. | I feel able to voice opinions and influence changes in my area of work | 115 | 65.7 | 27 | 15.4 | 3.64 | 1.03 |
| Social Relevance of Work Life | | | | | | | |
| 12. | My work is a good channel of information access and dissemination in my organization | 153 | 87.4 | 6 | 3.4 | 4.38 | .77 |
| 13. | In my capacity as a librarian I am recognized as contributing to the growth and development of the society | 141 | 80.6 | 13 | 7.4 | 4.15 | .93 |

Table 1 shows librarians ratings of QWL. Analysis of the individual variables in term of percentage distribution show that the librarians rated their quality of work life highest on 'I have good relationship with my colleagues in the work place' (93.7%) and lowest on 'My overall pay and allowance is equal to my peers in other departments of the organization' (39.4%).

Analysis of mean score shows that on a five point scale, librarians rated their Quality of work life very high (>4.00) on the two items of Social Relevance of Work Life: 'My work is a good channel of information access and dissemination in my organization' and 'In my capacity as a librarian I am recognized as contributing to the growth and development of the society.' They also rated their

Quality of work life very high (>4.00) on the two items of Opportunity for continued growth and security: 'The work I do in library will remain relevant in future' and 'I have job security - there is no fear of losing my job in future.' Mean score also show very high Quality of work life (> 4.00) on one item of Social integration in the work organization: 'I have good relationship with my colleagues in the work place.'

Equally, librarians rated their Quality of work life high (>3.50) on 'I have opportunities to deploy my skills for the institution (Item 3),' 'My colleagues are reciprocal in sharing knowledge and expertise (Item 9),' and 'I feel able to voice opinions and influence changes in my area of work.'

Librarians rated their QWL low (<3.50) on the two items of adequate and fair compensation. They are: 'My salary is commensurate with my work in the library' and 'my overall pay and allowance is equal to my peers in other departments of the organization.' They also rated two items of Opportunity to use and develop human capacities low which are: 'I am satisfied with the training and retraining I receive in order to perform my present job' and 'my employer provides me with what I need to do my job effectively.' Equally, respondents rated one item of constitutionalism in the work organization low which is 'I am not denied any thing that is my right because I work in the library.'

5. Hypotheses Testing on Demographic Factors and Quality of Work Life

5.1. Gender and Quality of Work Life

An independent samples t-test was conducted to examine whether there was a significant difference between male librarians and female librarians in relation to their quality of work life. Table 2 shows summary of the result.

Table 2: t-Test on Gender and Quality of Work Life of Librarians

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
|---|-----------------------------|---|------|------------------------------|---------|-----------------|-----------|-----------------|---|--------|
| | | F | Sig. | t | Df | Sig. (2-tailed) | Mean Diff | Std. Error Diff | Lower | Upper |
| I have opportunities to deploy my skills for the institution | Equal variances assumed | 9.265 | .003 | 2.060 | 153 | .041 | .33909 | .16458 | .01395 | .66424 |
| | Equal variances not assumed | | | 2.274 | 143.700 | .024 | .33909 | .14914 | .04430 | .63388 |
| My colleagues are reciprocal in sharing knowledge and expertise | Equal variances assumed | 4.274 | .040 | 1.976 | 158 | .050 | .31948 | .16167 | .00016 | .63880 |
| | Equal variances not assumed | | | 2.059 | 122.971 | .042 | .31948 | .15517 | .01232 | .62664 |

The t-test as shown in Table 2 revealed a statistically significant difference between male and female librarians in the following variable of quality of work life.

Opportunity to use and develop human capacities: Male librarians (M = 4.11, SD = .76) reported having more opportunities to deploy skills for the institution than female librarians (M = 3.77, SD = 1.08). This difference was significant $t(143.700) = 2.274, p = .024$.

Social integration in the work organization: Male librarians ($M = 4.09$, $SD = .89$) agreed that colleagues are reciprocal in sharing knowledge and expertise than female librarians ($M = 3.77$, $SD = 1.01$). This difference was significant $t(122.971) = 2.059$, $p = .042$.

Based on the significant difference found, H1 is accepted. Quality of work life of librarians is significantly related to gender.

5.2. Age and Quality of Work Life

A one-way ANOVA was conducted to examine whether there were statistically significant differences among librarians in various age groups in relation to their Quality of Work Life. Result is shown in Table 3.

Table 3: One way Analysis of Variance between Age groups and Quality of work life of librarians

| | | ANOVA | | | | |
|--|----------------|----------------|-----|-------------|-------|------|
| | | Sum of Squares | Df | Mean Square | F | Sig. |
| In my capacity as a librarian I am recognized as contributing to the growth and development of the society | Between Groups | 7.618 | 2 | 3.809 | 4.675 | .011 |
| | Within Groups | 133.639 | 164 | .815 | | |
| | Total | 141.257 | 166 | | | |

Table 3 shows the result of one way ANOVA that tested the relationship between QWL and ages of librarians. The result revealed statistically significant differences on **Social relevance of work life** which is 'In my capacity as a librarian I am recognized as contributing to the growth and development of the society' $F(2,164) = 4.68$ $p = .011$.

Post-hoc Scheffe test revealed that librarians aged between 45 - 60 reported significantly higher satisfaction in being recognized as contributing to the growth and development of the society compared to those aged between 20 - 29 ($MD = -.471$, $p = .011$). There were no other significant differences between the other groups.

Based on the significant difference found, H2 is accepted. Quality of work life of librarians is significantly related to age.

5.3. Educational Qualification and Quality of Work Life

No significant differences in the means of the factors were found according to educational qualification. Based on the non-significant difference found, H3 is rejected. Quality of work life of librarians is not significantly related to educational qualification.

5.4. Years of Work Experience and Quality of Work Life

A one-way ANOVA was conducted to examine whether there were statistically significant differences among librarians according to years of work experience in relation to their QWL. Result is shown in Table 4.

Table 4: One way Analysis of Variance between Years of Work Experience and Quality of work life

ANOVA

| | | Sum of Squares | Df | Mean Square | F | Sig. |
|--|----------------|----------------|-----|-------------|-------|------|
| I am not denied any thing that is my right because I work in the library | Between Groups | 22.332 | 3 | 7.444 | 4.872 | .003 |
| | Within Groups | 244.467 | 160 | 1.528 | | |
| | Total | 266.799 | 163 | | | |
| In my capacity as a librarian I am recognized as contributing to the growth and development of the society | Between Groups | 7.356 | 3 | 2.452 | 2.863 | .039 |
| | Within Groups | 136.190 | 159 | .857 | | |
| | Total | 143.546 | 162 | | | |

The results as shown in Table 4 revealed statistically significant differences on the following items of Quality of work life and years of work experience: 'I am not denied any thing that is my right because I work in the library' $F(3,160) = 4.87$ $p = .003$ and 'in my capacity as a librarian I am recognized as contributing to the growth and development of the society' $F(3,159) = 2.86$ $p = .039$.

Post-hoc Scheffe test revealed that librarians with over 21 years of work experience reported significantly higher satisfaction in 'I am not denied anything that is my right because I work in the library' compared to those with 11-20 years of work experience ($MD = -.830$, $p = .029$). Also librarians with over 21 years of work experience reported significantly higher satisfaction on 'In my capacity as a librarian I am recognized as contributing to the growth and development of the society' compared to those with 1-5 years of work experience ($MD = -.629$, $p = .044$).

Based on the significant differences found, H4 is accepted. Quality of work life of librarians is significantly related to years of work experience.

5.5. Institution Type and Quality of Work Life

A one-way ANOVA was conducted to examine whether there were statistically significant differences among librarians in various institution in relation to their Quality of Work Life. Result is shown in Table 5.

Table 5: One Way Analysis of Variance between Institution Type and Quality of Work Life of Librarians

ANOVA

| | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|----------------|----------------|-----|-------------|-------|------|
| My salary is commensurate with my work in the library | Between Groups | 11.869 | 2 | 5.935 | 3.901 | .022 |
| | Within Groups | 231.266 | 152 | 1.521 | | |
| | Total | 243.135 | 154 | | | |

Table 5 shows summary of result of one way ANOVA test of the relationship between quality of work life and institution type. The Result revealed statistically significant differences on only one item which is *Adequate and fair compensation* 'my salary is commensurate with the work I do in the library' $F(2,152) = 3.90$ $p = .022$.

Post-hoc Scheffe test revealed Academic librarians reported significantly higher satisfaction with their salary compared to their counterparts in the Public libraries ($MD = .788$, $p = .035$). Results also revealed that librarians in Research or Special libraries reported significantly higher satisfaction with their salary compared to their counterparts in the public libraries ($MD = .900$, $p = .040$). There was no significant difference between academic library and research library ($MD = .112$, $p = .905$).

Based on the significant difference found, H5 is accepted. Quality of work life of librarians is significantly related to institution type.

6. Discussion

The research is a study on Quality of Work Life (QWL) of librarians in Nigeria. Descriptive statistics show that for the librarians, adequate and fair compensation was an issue of concern. Librarians felt there is no adequate and fair compensation to their duties in the library. This is in line with the general feelings that librarians are not adequately compensated in their work place [16, 17]. This negative perception can be a source of dissatisfaction and stress for the librarians. According to Duda [18] the adequacy of compensation has great impact on the ability of an organization to meet its goals. Inadequate compensation leads to poor performance, absenteeism, excessive turnover, grievances, and strikes. Although such problems will never completely disappear, morale can be positively affected if an organization has formulated and disseminated its compensation objectives. To remedy the situation, The ALA Allied Professional Association [19] advised that librarians must promote a better understanding of what the librarian does. No one will want to pay librarians more money if they have no idea what education, experience, judgment and special skills they possess for the performance of their duties.

Equally, librarians were not satisfied with the training and retraining they receive in order to perform their present job and also noted that their employer do not provide them with what they need to do their job effectively. This shows willingness to work but lack of empowerment and resources. This can also be linked with the issue of inadequate compensation. Goodrich and Singer [20] explained that compensation is much more than salary. It includes everything that the employee perceives to be of value resulting from the employment relationship. It's a mix of salary, bonus, benefits, various perquisites, and the work environment. Another area of dissatisfaction is on right issues. More than half the respondents felt they were denied their rights because they work in the library

Respondents rated their quality of work life high for opportunity for continued growth and security. Their ratings showed that they felt secured and integrated in their work organization. Majority agreed that the work they do in the library will remain relevant in future, with job security and no fear of losing their job in future. This is in contrast with the pessimistic opinion expressed by some on the future prospects for library [21]. The reason for this can be adduced from the opinion of Shupe and Pung [4] with reference to academic librarians, noted that contrary to the popular perception of librarianship as an antiquated, stagnant profession characterized by long days of the re-shelving and circulation of books, involvement in outreach and instruction has made the librarian's duties become more dynamic and challenging.

In terms of social integration in the work organization, librarians felt socially integration in their work organizations. Majority indicated they have good relationship with colleagues in the work place and that their colleagues are reciprocal in sharing knowledge and expertise. This shows good interpersonal relationship which can contribute to improved psychological wellbeing and adaptability to the pressures of everyday work life.

On constitutionalism in the work organization, there was more positive response on the ability to voice opinions and influence changes in their work area than respect and granting of work rights. Only half the librarians agreed they are not denied their rights in the work place.

Regarding social relevance of work life, majority rated their QWL high on the statement that their work is a good channel of information access and dissemination in their organizations. They also rated their QWL high on being recognized as contributing to the growth and development of the society in their capacity as librarians. This positive perception is important for job retention. Poor perceptions of social

relevance of work can lead to high staff turnover and job abandonment which may result in loss of important skills.

6.1. Demographic Factors and Quality of Work Life

Independent Samples Test shows that QWL is dependent on gender. Male librarians reported having more opportunities to deploy skills for the institution than female librarians. Male librarians also agreed that colleagues are reciprocal in sharing knowledge and expertise than female librarians. In contrast, Bolhari, Rezaeean, Bolhari, Bairamzadeh and Soltan, [22] found no significant relation between gender and QWL for information technology staff.

One way Analysis of Variance revealed no relationship between QWL factors and educational qualification of the respondents. This means that QWL of librarians in the study is not dependent on educational attainment. However, QWL was found to be dependent on institution type, age, and years of experience. Academic and research librarians reported greater satisfaction on salaries than their counterparts who work in Public libraries. This is not unexpected. There are different salary scales for University libraries/Research libraries and the public libraries in Nigeria. This scale is higher for University libraries/Research libraries.

For age, librarians aged 45-60 reported significantly higher satisfaction in contributing to the growth and development of the society compared to those aged 20-29. In terms of years of work experience, librarians who have worked 21 years and above were more positive that in their capacity as a librarian they are recognized as contributing to the growth and development of the society. They were also more positive that they are not denied anything that is their right because they work in the library.

7. Summary of Findings

- I. Librarians in the study rated their Quality of work life high (>3.50) on *Opportunity for continued growth and security, Social integration in the work organization, and Social relevance of work life*. They rated their QWL low (<3.50) on *Adequate and fair compensation, training and retraining, and provision of tools to do job effectively*.
- II. Quality of work life of librarians in the study is significantly related to gender. Male librarians reported having more opportunities to deploy skills for the institution than female librarians. Also Male librarians agreed that colleagues are reciprocal in sharing knowledge and expertise than female librarians.
- III. Quality of work life of librarians is significantly related to age. Librarians aged 45 - 60 reported significantly higher satisfaction on being recognized as contributing to the growth and development of the society compared to those aged 20 - 29.
- IV. Quality of work life of librarians is not significantly related to educational qualification.
- V. Quality of work life of librarians is significantly related to years of work experience. Librarians with over 21 years of work experience reported significantly higher satisfaction on not being denied anything that is their right because they work in the library compared to those with 11-20 years of work experience. Also librarians with over 21 years of work experience reported significantly higher satisfaction on being recognized as contributing to the growth and development of the society compared to those with 1-5 years of work experience.

- VI. Quality of work life of librarians is significantly related to institution type. Academic and Research librarians reported significantly higher satisfaction with their salaries compared to their counterparts in the public libraries.

8. Recommendations

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

1. Professional Associations in Nigeria are usually the advocates of welfare issues for their members. Nigerian Library Association and Librarian Registration Council of Nigeria should therefore study the salary structure and allowances of librarians as regards their complaint on being compensated below others. Areas of difference should be noted and special allowances that should accrue to librarians in their work place should be mapped out and presented to relevant government agencies for consideration, approval and implementation. This will help bridge compensation gap between librarians and other professionals in the work place.
2. Staff development especially training and retraining of professionals should be encouraged and financially supported by library leaders and institution management.
3. Library leaders need to seriously upgrade their libraries through infrastructure and resource acquisition so that librarians will have work tools for maximum engagement.
4. In terms of being denied rights in the work place, librarians through their national associations should protect their individual and collective rights through advocacy and lobbying not just to institution management but to government authorities.
5. There should be no discrimination in assignment of responsibilities based on gender. All librarians should be given equally opportunities to deploy their skills and contribute to the growth and achievement of organizational goals.
6. Public libraries should be upgraded to the salary structure of academic and research institutions in the country because they are also agents of research and learning.

9. Conclusion

An acceptable Quality of work life is needed for good work-life-balance. Librarians in this study indicated good QWL in many aspects of their work life. However important areas such as fair remuneration, training and retraining, Facility provision for job performance and equal right issues were areas of dissatisfaction for the librarians. Quality of work life of librarians is significantly related to gender, age, years of work experience and institution type. For improved work experience these factors need to be considered by library managers when instituting policies and actions. The limitation of the study is on the sample size which may not be very representative for generalization to all librarians in Nigeria. However, considering the diversity of the working institutions of the respondents with sixty – nine institutions represented from all geopolitical zones of the country, the result can be considered significant. The result significance is also reinforced by the fact that it reiterated what have been reported in literature on complaint by librarians in other countries especially on remuneration and compensations showing that librarians in Nigeria are equally affected by this dissatisfaction. Essentially, librarians' Quality of work life need to be a positive one in all areas and for all concerned for job retention and good productivity. It is therefore imperative that librarians map out advocating strategies to improve their work environment and also ensure adequate compensation. This will help increase their Quality of work life in this digital era.

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Marketing of Library Services for Customer Satisfaction: A Case Study of the Polytechnic Ibadan

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Abstract The relationship between Librarians and patrons (library users) must be a symbiotic one if high education standards must be maintained and sustained especially in this age of information explosion. This means library collections, programs and services will remain marketable to educational communities regardless of their status. This paper highlighted roles and medium through which librarians can market various resources with a practical example of marketing strategies and techniques for newly admitted ND1 Students of The Polytechnic Ibadan Saki Campus, 2014/2015 academic session. Out of the 14 academic departments of the institution, 7 construction related departments were selected viz-a-viz Agricultural Engineering, Agricultural Technology, and Architectural Technology, Building Technology, Estate Management and Quantity surveying. In each of the selected 7 departments, Class representatives and their deputies were purposefully picked totaling 14. These were invited to watch documentary film at Saki Campus Library on the construction of World's Tallest Hotel in Dubai, as part of orientation activities for fresh students. The multiplying effects of this program led to an improvement in usage, value, and increase in user education and perception which served as outcome for marketing library services. The paper then recommends among others, that this marketing strategy should be adopted and extended to other academic campuses to sustain academic culture nationwide. As librarians willing to justify their relevance in academic environment and library vote from their parent body, marketing techniques and strategies should be adopted in order to satisfy the library users' needs.

Keyword *Library Services; Customers Satisfaction; The Polytechnic Ibadan; Marketing*

1. Introduction

Library users are customers that consult library for their information needs, which can be obtained elsewhere. The extent of their satisfaction rests on how library understands customers: their status and interest area should be known and catered for the conditions for offering information services, program and products is a consideration for entire academic library staff. How well we communicate with our users and how we receive feedback on their needs is an indicator for understanding our customers. They are important visitors to our quiet zone. As independent as they are; we are dependent on them for our relevance. Their regular or occasional appearance with their wants and

needs facilitates our work to meet their challenges; they are encouragers for all the opportunities to serve them, hence they need to be treated with utmost care, including difficult library patrons as our relation is to achieve maximum benefit in the participation (Ngozi, 2014). Patronage of academic library is always high during examination time than any other period; the reason is due to low reading habit of our clients. The concern of library is to start marketing resources through her collections, programs and services so as to reverse the poor reading habits among Nigerian students (Aina, 2011).

Kotler (1983) defines marketing as an act of analysis, planning, implementation and control of carefully-formulated programme designed to bring about voluntary exchange of value with target markets for the purpose of achieving organizational objectives.

1.1. Points to Note in the Definition Are

- Marketing is a management process based on analysis, implementation and control.
- It is Policy related - as programs/structures need to be carefully planned for, to achieve positive responses.
- Voluntary exchange- no compulsion or coercion in social programs as participation is voluntary
- It selects target among segments as it does not mean same thing to all people.
- It allows correlation with organization objectives.
- It emphasizes or shows concern with the target market (consumer's) needs and desires rather than with producer's choice. Madhusudan (2008)

Today, vast amounts of information are available in numerous forms and its seeping by individual at work places, homes and recreational centers in various formats, such as- computer software, databases, CD ROMs, cable and satellite television, direct satellite services, radio, television, telex, the world wide web, newsgroup, list serves, e-mail, video conferencing, streaming etc make reading for pleasure and passing examination easier than olden days *as the learner can sometimes boycott information objects (librarians, and teachers), information media (library, classroom, and laboratory infrastructure) and information executors (librarians, teachers and administrators)*. Therefore, they can do without libraries as alternatives abound everywhere, if we should allow them to slip away completely, librarians may be adjudged to be inefficient in the discharge of their primary responsibility and library may be viewed as an ordinary store house of knowledge. The only way out of this conundrum is to employ a more proactive marketing strategy for library services which must be supported with research and adequate plan. The commonest goal to all libraries is to put up strategies that will improve the reading habits of all the different segments of users by reviewing contents and design for service promotion. This may lead to introduction of facilities, tools, techniques and proper guidance for staff among others. Donohoe (1992) sees services from the area of specialization such as Selective Dissemination of Information, Referral Services, One-to-One Session, teaching and training users, individual help to users, services dedicated to the needs of a particular group, aggressive marketing campaign and IT support for mobile and non-mobile library users. While Corral (1994) sees proactive role of librarians on the production of publications such as journal articles, hand-outs, written guides, daily lobbying, and negotiating on behalf of users, the author sees facts, information, knowledge and wisdom content of various platforms, good human relation and media in the traditional services combine with online internet, publishing facilities and commercial online databases available through Internet and network providers as all means of marketing academic libraries in Nigeria.

Library can generate reading list for all subjects, recommend materials to buy, allow free online ordering facility, and select materials for patrons through Assisted Purchasing Scheme, provision of unique range of loans like books, DVDs, story CDs and cassettes for the different categories of users

among others. Librarians may bring about Improvement of facilities if library can have a garden- it can be converted to a place for relaxation and recreation because of beautiful plants arrangement, decorated environment and fresh non polluted air.

Catalogue and internet workstations can be positioned in an open area where it could easily be seen, while different copy machines can be placed at different points for convenience under the supervision of librarians

Students service desks, reading areas may be separated from lecturers' joint, only to find out that both may be much happier. Replacement of dimmed lights with strong ones and light paints in the open shelves may cut down on defacement in the library.

Relocation of audio and CD books to reservation area near entry or exit point may support the organization's objective and promote convenience of patrons.

The signing of pact at various levels by libraries at local, regional, international and other information agencies using all the media available to get the request of patrons granted makes lending and borrowing easy for the partners involved.

Libraries do purchase articles, or get any resource for patrons through online purchase. The impact of library in the society can be further boosted by observing or organizing important events such as Library week, Book Fairs, visit to places of interest such as National Museum, National library, amusement parks, archives, and computer information departments among others. Centers for reading program and spelling bees competition may also be set up in order to boost library patronage. Advantages of interactive web applications may be adopted for library users, non-users, professional and non-professional library staff for growth and development of information cum knowledge on library web sites. Provision of these services will appeal to a growing number of mobile users and those in online communities

1.2. Successful Program Executed at the Polytechnic Ibadan Are

- Life skills presentation:- Management skills, such as time, home, business and electronic information access were organized at the end of semester as break program for all library users with a fee of Hundred Naira (#100:00) for each participant. No penalty is awarded against absentees as it is optional for our clientele.
- Presentation on recreational interest such as small scale agricultural program, beekeeping, horticultural practices, catfish production, snail farming, poultry and sewing crafts. This program is a day seminar organized as part of staff training and development. Every participant pays Two Hundred Naira (#200:00) as attendance fee with take away fruit pack. This program is a passive income generator as the owner of the new venture still retains his/her monthly salary while keeping the money spinning vocation at the same time.
- Presentation of concerts: - They are in this order- chats shown, drama, game show, sportscast, talks show, etc. The program is an outreach event organized for secondary school students as preparation for public speech. Talks on production processes of art works, art investment, inspiration and storytelling on political issues, governance, economy, and narratives of social life are not left out for users' consumption. Library provide a link to who wants to protect our cultural heritage through literature, art and symbolism especially in the area of traditional medicine that is free of superstitions and fetish coloration, or owner of books wanting to sell, and who wish to consult book sellers, printers, publisher or any member of the book/publishing industry. It is a free program as library has sponsors for it.

1.3. Product Analysis at the Polytechnic Ibadan Library

The quality of the product is hardly known until it got to the market, this depend on how it is packaged for all the consumers. The promotion of library product is through aggressive awareness viz-a-viz banners, posters mounted in strategic places at all converging centers such as admission office, health center, bursary, library, hostel and departmental offices. Library guide, literacy instructional classes with orientation practical at e-library for all fresher's and sophomores are contributive factors to product marketing. Students pay fees, register courses, update library records on regular basis. The polytechnic Ibadan has synergy with Nigerian Library Association at National, and State level, Chartered Librarian Registered Council on Advocacy and productivity on programs, products and services.

Library has automated all its functions under the library automated program. In fact, library has used Lib+, X-Lib, etc before changing to the present Koha software. The present library automation has the full support of Federal Ministry of Education Agency known as Tertiary Education Trust Fund (TETFUND). The financial support led to ease the way for the polytechnic library to set enough money for personnel training, online bibliographic database with barcode for circulation while older resources are under backup. Library guide is incorporated into home page of PolyIbadanlibrary.com using Library of Congress as backbone. The online Public Access Catalogue can be found on <http://192.168.90.59:83>. The library offers access to reference items like General and subject encyclopedia. Searchable text for e-journals of all twenty five program in the five faculties Business and Communication Studies, Engineering Studies, Environmental studies, Financial Management Studies and Faculty of Science can be found through the PolyIbadanlibrary.com. Databases from publishers such as Jstor, Blackwell, Emerald, ACS, Institute of Physics, American Institute of Physics, Cambridge, Springer, and Elsevier's Science Direct among others can also be found.

1.4. Price for Product

The motto of The Polytechnic Ibadan is hard work is a panacea to poverty. "Ise logun ise" Students will not be short changed with less than the quantity and quality of knowledge they are entitled to receive. Parents will not be defrauded by offering them less than what they paid for and the Nation will not be defrauded through less training than its children and future leaders should receive. This is the reason of a flat rate charge for all students as they pay #770:00 as annual subscription fee to the library. Students of this institution can be divided into two categories- irregulars and regulars. The irregular are those that are under directorate of Preliminary and Basic Studies these are:

Pre-National Diploma, Interim Joint Matriculation Board (IJMB) Test of English as a Foreign Language (TOEFL) and International English Language Test Scheme (IELTS). These students having properly registered have access to their separate collections and restricted services such as lending of course materials, photocopying and reading in the library as the only opportunity given to them. They are the least as their total population is just two thousand on annual basis with a short stay in the campus. The regulars are 1st year National Diploma and second year (ND1, NDII), 1st year Higher National Diploma and second year (HNDI, HNDII) and Part-Time students. The population of all National Diploma students is twenty two thousand, Higher National Diploma six thousand while all Part-Time students is Five Thousand Two Hundred. The regular especially Full-Time has maximum benefits after the registration as their access card will provide the following opportunities: investigation about the library, receipt of library brief, library guide, assignment alerts, book fairs, participation in award day competition program, reading together (shared reading) lectures and special exhibits. Resources in Institutional library contain topical issues on all the departmental programs including leisure reading such as parenting, home maintenance, time management, stress reduction, career improvement, hobbies and health tips for personal consumption. Library personnel such as librarians, library assistants, technicians, clerks, aides, and even book keepers and custodians have a lot of

contribution in tangible and intangible library practices as mentioned by Heery (1996) and Pelman (2009) perform varieties of work such as enquiry work and alerting services to library users, through circulation, collection provision, user education, IT facilities and support literature. The library staff and user's interaction may be in form of what suits the client i.e. face-to-face to that which is available at the end of telephone, e-mail or through dial-up services. The cooperation and academic integration has made many lecturers to encourage library usage through generation of reading lists, assignments/projects given to students periodically.

2. Objective of the Study

The main objective is to expand the awareness about library products, programs and services to faculties and students within and outside the polytechnic Ibadan, Saki campus as justification for the contribution of library in users academic development and to fulfill the goal of tertiary institution on its products.

3. Statement of the Problem

The rate of seeking admission to tertiary institutions in Nigeria is alarming from the Unified Tertiary Matriculation Examination (UTME) records. Not all successful candidates were given admission. Attempts by government to establish more tertiary institutions of learning and private ones with their study center have not addressed it completely. Belo (2013) opines that some students after being given admission are not serious with their education by not spending their time judiciously thereby having their academic performance adversely affected by scoring low marks in assignments, test, practicals and examinations. Only few percentage of Nigeria students have cultivated a lifetime reading habit, as the best result in annual convocation brochures of all tertiary institution continuously shows. Libraries and information centers are beset with the problem of under-utilization of information resources and the tasks of implementing ICT educational policy that can improve reading culture. Though, marketing is not built into culture of academic library, until the last decade, and in line with Madhusudhan (2008) who consider information technology as a gateway for information services, information products and other programs is a multiplicity of format for competition and alert for both libraries and information centers, but it must be adopted aggressively like that of special library to address this stated problem by influencing or changing relationship between students and the school so as to arrive at a more positive user behavior.

4. Research Methodology

Out of the 14 academic departments of the institution, 7 construction related departments were selected viz-a-viz Agricultural Engineering, Agricultural Technology, Architectural Technology, Building Technology, Estate Management, Quantity surveying and Urban and Regional Planning. In each of the selected 7 departments, Class representatives and their deputies were purposefully picked totaling 14. They were invited to watch a documentary film at Saki Campus Library of The polytechnic Ibadan on the construction of World's Tallest Hotel in Dubai, as part of orientation activities for fresh students. The advertisement was placed through text messages and also on notice boards. The last minute reminder was done by text messages few hours before the event came up on 13th February 2013 for a period of 2 hours. Each group was given either KLCC Twin Tower in Malaysia or the Eiffel Tower in Paris as another documentary film to watch at home for comparison with The World Tallest Hotel. The subjects were divided into two discussion groups to debate on relevance of library to academic growth. They were later asked to move round the library collections to select books related to construction based on the televised documentary. Within 10 minutes, their selection ranges from three to ten books by each participant. They were further asked to go online and find out the difference on the lifespan of various building constructions, architecture layout, materials, project equipment, inspection, and construction workers between African countries and

Asian countries and borrow any number of books needed for the assignment. Their response is that if the circulation policy allows them, they will prefer to borrow more than 3-5 books for a period of 3-4 weeks like the lecturers do, contrary to the policy of the institution (that is two books for two weeks). The aim of the program was explained to them and they were asked to post their comments later by text message to Campus Librarian.

5. Results and Discussion

The study shows that the event (of film shown to the construction related departments) was meant to run for one batch, later became a repetitive for many students as people were trooping to the library to copy the documentary into the flash drives, burn into digital video disk (DVDs,) and watch again. The benefits of this program are:

The interactive orientation exposed users to the new information and knowledge, with the assistance of library staff on extra needs at the program. New patrons were able to see the library as a center for community development as it accommodates recreational, educational and information facilities. Students were sensitized on the fact that the library is a supportive tool for theoretical and practical learning of all time. This simple strategy improved the library image and addresses the under-utilization of libraries and other information centers as part of justification for its relevance and funds collection. The introduction of this program has presented the institutional library as an integral part of the academic sector and the event served as a spring board for future programs and events like book fairs, authors visit, book talks, art exhibitions, etc that can be introduced later.

The library is now promoting its services aggressively as it adopt marketing a mix of products (books and periodicals loan), price (cash and discount on photocopying and printing), Place (distribution channels, inventory and location as more collection center is meant for materials borrowed from library) and promotion (advertising, personal selling and a good public relations can leads to an influx of program sponsors). The program permits the library staff to spend some time with students thereby facilitating effective use of the library.

5.1. Effects of Programs on Future Plan

Currently, the library accommodates one hundred and twenty seats at a time, but the average gate count at the end of semester is Three Thousands One Hundred and Twenty eight, an increment of 25% over the last year patronage. This program can still be organized on monthly basis across campuses. The program is a collaborative learning style meant for environmental and engineering students only, which later on pull all the students from other departments, academic staff, non-academic staff and distance learners as accidental library users.

This is a means to get another form of study areas as it can either be done formally or informally without affecting the serene environment for study and research. It is an eye opener for the design team of the new library to incorporate comfortable and adequate space for the facility, programs and resources. This is so since academic library relies heavily on collection of print materials as opposed to a large variety of video, audio and other forms of media commonly found in school collections in Nigeria.

6. Conclusion

The library is a gateway for intellectual development as it is always equipped with information sources, resources and skills for faculty instructions and student learning. Connection of library with educational consortium and creation of menus on web homepage using Google, Twitter, Face book and LinkedIn promote library visibility and sensibility to her users. All efforts are geared towards

ensuring that the library is not relegated into the background after home, work place or classroom using marketing mix such as product, place, price and promotion. The adoption of marketing strategies has improve library products, services, program, library staff skills and users be it active or potential for academic growth and development so that everybody will be more satisfied at the end of the day.

Recommendations

- There is need for marketing of library and other information centers to improve on poor patronage and low academic performance. Users especially students perceived library effectiveness from an electronic paradigm, this preference must be catered for, to market services, collection and program.
- In addition, program that is of high value related to different departments like documentary film shown to construction related departments must be included as a means of reaching out to non-users of the library so as to improve users' patronage and poor academic performance of students.
- The paper also recommends that this marketing strategy should be adopted and extended to other academic campuses to sustain academic culture nationwide. As librarians willing to justify their relevance in academic environment and library vote from their parent body, marketing techniques and strategies should be adopted in order to satisfy the library users' needs

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The Application of Humanistic Management Theories in the Effective Administration of Public University Libraries in Nigeria

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Abstract This paper discusses the application of humanistic management theories in the effective administration of public university libraries in Nigeria. The purpose of this paper is to see how humanistic management theories can be applied to the effective administration of the public university libraries in Nigeria. Library serves as a solid foundation that bears all the academic structures (programmes) in the university system. It supports all the curricula as well as teaching and research of the university system. Hence, the paper proceeds along the following spectrum: concept of management as regards to its objectives, functions, goals, and essentiality will be briefly discussed; it goes further to briefly discuss effective administration of university library; then proceeds to highlight various management theories as regards to their strength and weaknesses; each humanistic theory in relation to the effective administration of university library was broadly discussed. In conclusion, the paper postulates some number of factors as the way forward to some problems that would affect the effective application of humanistic management theories in the Nigerian public university libraries.

Keywords *Management; Management Theories; Humanistic Theories; Effective University Library; Administration*

1. Introduction

Management according to Business Online Dictionary (2016) is the organization and coordination of the activities of a business in order to achieve defined objectives of every establishment. It implies that management is often included as a factor of production along with machines, materials, and money. Every establishment especially the university library has to be adequately managed by capable personnel that could skilfully applied management theories in day to day administration of the library resources in order to achieve its stated objectives. "Library forms an integral part of any institution of higher learning in the human society. Libraries are established in the university system to provide high quality information services in support of teaching, learning and research for faculty members as well as acquisition of knowledge of the students" (Kolajo, 2012, 70). That is, libraries are established to support the curricula of the university system. The author further stressed that library personnel especially librarians occupy a central position in the university system. They are the

managers and custodians of both human and educational resources stocked by the university libraries. The job performance of these library personnel has a bearing on the way they carry out their professional duties.

The purpose of this paper is to apply humanistic management theories to the effective administration of the public university libraries in Nigeria. Hence, authors of this paper focus their discussion on all theories in the humanistic school and show how they could be jointly applied in the effective administration of employees in these university libraries.

Therefore, the paper proceeds along the following spectrum: concept of management as regards to its objectives, functions, goals, and essentiality will be briefly discussed; it will go further to briefly discuss effective administration of university library; then proceed to highlight various management theories as regards to their strength and weaknesses; humanistic theories in relation to the effective administration of university library will be broadly discussed. Then after, the paper will conclude by pointing out some benefits that public university library would gain in applying humanistic theories in its administration process. Also, proffer solutions to some problems that might emanate in the application of the humanistic theories.

2. Effective Administration of University Library

Business Dictionary (2016) defined the term effective as the degree to which objectives of an organization are achieved and the extent to which targeted problems are solved. In other words, effective means doing the right thing to achieve the stated goals that are instituted by the administrator of an organization. In Nigeria, there are 81 public universities (National University Commission, 2015). The list comprises of 41 Federal and 40 State owned universities respectively. Each of these universities have a library manned by a University Librarian working together with other professional and non-professional personnel to provide relevant educational resources to support the curricula of the university programmes. In the university library sector, university librarian serves as the administrator of both human and educational resources stocked in the library. He/she is expected to provide an effective administration of these resources. Hence, an administrator is one who (a) directs the activities of other persons and (b) undertakes the responsibility for achieving certain objectives through these human efforts in the organization (Manzoor, 2014).

Moreover, Manzoor (2014) reiterated that successful (effective) administration appears to rest on three basic skills: technical, human and conceptual. These skills are not interrelated but they are necessary tools in developing an effective administrator in the organization especially the university library. While technical skill entails a proficiency in methods, processes, procedures, or techniques. It involves specialized knowledge, analytical ability within that speciality, and facility in the use of the tools and techniques of the specific discipline. Human skill on its own involves an ability to lead and work effectively in a group. The person with highly developed human skill is aware of his own attitudes, assumptions, and beliefs about other individuals and groups; he is able to see the usefulness and limitations of these feelings. He is a person with highly developed emotional intelligence skills to manage human feelings and achieve the targeted goals of the university library. Conceptual skill consists managerial skills critically needed for policy decision-making, involves the ability to see the organization as a whole, recognize how various functions interrelate, and understand how the organization is related to the industry, community, and nation. It extends to visualizing the relationship of the individual business to the industry, the community, and the political, social, and economic forces of the nation as a whole (Katz, 1974; Manzoor, 2014; Ogungbeni, Ogungbo and Yaya, 2013).

However, it is imperative to note that library personnel occupy a central position in the university system as they provide and maintain intellectual resources that help in strengthening academic

programmes in the university system. Hence, they needed to be effectively catered for by the administrators of these institutions of higher learning so as to enhance their optimal level of productivity. Thus, one of the various methods of caring for the library personnel is the application of humanistic management theories in the day-to-day administration of these institutions especially the university libraries.

3. Concept of Management

The term management was derived from Latin word "*Manu agere*" which means to lead by hand. Lead by hand means, giving directions (Mahmood, Basharat & Bashir, 2012). Management is the organization of activities of a company through group of people (workers) to reach defined objectives. All organizations rely upon group efforts to achieve goals (Ryan, 2014). Similarly, Hartzell (2006) defined management to involve making the best use of available resources to achieve the stated goals of the organization. Also, management is "the art, or science, of achieving goals through people" (Olum, 2004, 3). It involves looking over a group of workers in an organization – i.e., making sure people do what they are employed to do.

Management simply means the art of using available personnel in the organization by the superior officers (managers) to achieve her goals and objectives. Managers in every organization are, therefore, expected to ensure greater productivity of workers under his/her leadership control. More broadly, management is the process of designing and maintaining an environment in which individuals, working together in groups, efficiently accomplish selected aims (Koontz & Weihrich, 1990 in Olum, 2004).

The authors of this paper concur with the view of Kolajo (2012, 70) that "management of people at work is an integral part of the management process. To understand the critical importance of people in the organization is to recognize that the human element and the organization are synonymous". Management is the process of reaching organizational goals by working with and through people and other organizational resources. It has three characteristics: it is a process or series of continuing and related activities; it involves and concentrates on reaching organizational goals; and it reaches these goals by working with and through people and other organizational resources (<http://managementinnovations.wordpress.com>).

It implies that the major goal of management is to maximize profit and increase productivity in the organization. A well-managed university library usually sees average library personnel as the root source of quality and productivity gains.

Hence, librarians as managers of both human and library resources must create conducive work environment for their workers in order to enhance their productivity as a happy worker is a productive one. This means several things. First, as managers, they are to carry out the managerial functions of planning, organizing, staffing, leading, controlling and motivating. Second, management applies to any kind of organization especially the university library where both human and non-human resources are to be directed towards achieving its statutory goals. Third, management applies to managers at all organizational levels. Fourth, the aim of all managers is the same – to create surplus; that is to make profit, although library generally is not a monetary profit making organization but the effective usage of its collections by readers can be seen as its profit. Finally, managing is concerned with productivity – this implies effectiveness and efficiency. Thus, management is directed towards: problem solving, administration, human resource management, and organizational leadership (Olum, 2004). Hence, management objectives, functions, goals, and essentiality are hereby discussed in turn so as to give more clarity to the conceptual meaning of management.

3.1. Management Objectives

As earlier mentioned the basic objective of management of people in any organization is to increase productivity of its personnel and invariably achieve the set visions and missions of the establishment. However, Olum (2004) noted that the specific objectives of any organization especially the university libraries include:

- Ensuring organizational goals and targets are met – with least cost and minimum waste;
- Looking after welfare and safety of every personnel in the organization; and
- Protecting the machinery and resources of the organization, including the human resources.

The above specific management objectives could be applied to any Nigerian university library. Librarians are to ensuring that goals and targets of the university which is providing educational resources to support teaching, learning and research activities. Librarians are to look after health, welfare and safety of every library personnel so as to achieve the greater productivity of its workforce.

3.2. Management Functions

Basically management functions entail planning, organizing, staffing and controlling. In this paper other related functions like: motivating and leading shall be highlighted. Each of these managerial functions as applicable to libraries shall be discussed in turn.

Planning: Planning involves choosing tasks that must be performed to attain organizational goals, outlining how the tasks must be performed, and indicating when they should be performed. Planning activity focuses on attaining goals (<http://managementinnovations.wordpress.com>). In any organization, effective planning as to the success of the organization's product and services has to be carried out by its management. This implies that in the university library setting, librarian must plan the collection development of the library in accordance to the curricula of the university. These collections must adequately support learning, training and research activities of students, faculty members and various information seekers that visit the library for their information needs.

Organizing: Organizing involves assigning the tasks developed in the planning stages, to various individuals or groups within the organization. Organizing is to create a mechanism to put plans into action (<http://managementinnovations.wordpress.com>). Workers within the organization are given work assignments that contribute to the company's goals. For library resources to be effectively utilized by its users there is need for proper assignment of each staff in those areas where they can function efficiently.

Staffing: This is also known as human resources function. It involves filling, and keeping filled, the positions in the organization structure (Olum, 2004). It could be generally observed that human resources play a vital role in the implementation and manipulation of other factors of productions to yield the needed result (product). They manipulate and control other resources in the organization to achieve its desired goals and objectives. To this end, qualified personnel are to be engaged in carrying out a desired responsibility in any organization especially the academic libraries in Nigerian public citadel of learning. It could be noted that there are three categories of library personnel, namely: professional librarians, para-professionals (library officers) and supporting staff. These categories of personnel are needed to carry out different functions in every university library.

Controlling: According to Olum (2004, 6), coordination (controlling) is "the essence of manager-ship for achieving harmony among individual efforts toward the accomplishment of group goals". It entails constant gathering of information that measures performance; comparing present worker's

performance to pre-established performance norms; and determining the next action plan and modifications for meeting the desired performance parameters in the organization. Thus, controlling is an ongoing process (<http://managementinnovations.wordpress.com>). Each of the managerial functions is hinged on employees' coordination. It could be noted that controlling workforce in the organization is one of the major problems that managers encounter.

Leading: This involves “influencing of people so that they will contribute to organization and group goals; it has to do predominantly with the interpersonal aspect of managing” (Olum, 2004, 4). The author further stressed that “most important problems to managers arise from people (workers) – their desires and attitudes, their behaviour as individuals and in groups”. Thus, providing purposeful leadership to other members of staff in the organization is one of the essential managerial responsibilities.

To this end, librarians are to effectively lead other library personnel to achieve all the set goals of the university library. They are to provide purposeful leadership to other library personnel. This could be done when they show leadership by example; that is, when they actively get involved in the library work so as to boost the morale of industrious library staff and strengthen the hands of slothful workforce.

Motivating: Managers should not always be concerned with maximizing profit for the organization without taking into consideration welfare of his/her workforce. It can be pointed out here that the main goal of each management theories is to enhance productivity in the organization. Thus, employee motivation enhances productivity of workers in any organization especially in the public university libraries as a motivated worker is a satisfied worker and a satisfied worker is a happy and productive worker.

It is expedient for every “manager to take initiative in finding out those factors that improve job satisfaction of the subordinates” (Vijayabanu & Swaminathan, 2016, 1638) in order to boost productivity and enhances retention of the experienced workforce in the organization.

3.3. Management Goals

The set goals of most organizations are in two-fold: employees' productivity and profitability. “Productivity improvement is about effectively performing the basic managerial and non-managerial activities. It implies effectiveness and efficiency in individual and organizational performance” (Olum, 2004, 6). Library personnel are expected to be productive in order to adequately achieve the set objectives of the library among the university community. This could be made possible when librarians as library managers provide an enabling environment for library staff to effectively thrive.

Besides, profitability is one of the parameters to measure the growth and development of every business. Although library is a social service institution; that is, not direct profit yielding institution. Nonetheless, her resources are carefully selected, acquired, processed, organized and displayed to various library clientele that accessed library collections for their information needs which invariably enhances success of their educational or research activities within and outside the university community. This is profitability.

3.4. Management Essentiality

In any organization of either profit yielding or not-for-profit yielding, management is an essential factor. Management through its roles designs and provides the basic direction on the way forward in making organization to realize its stated goals within the university community. Thus, management applies to either small and large profit or non-profit social institutions like the university library. It can

be reiterated here that librarians as library managers carry out managerial functions at different levels. The University Librarians spend more time on planning, budgeting, organizing and controlling than do lower-level librarians who are saddled with the responsibility of leading other library personnel to meet the information needs of various information seekers that visit the library collections. The difference in the amount of time spent on controlling varies only slightly for librarians at various levels

4. Management Theories

The history and evolution of management is as old as the history and creation of man (Buble, 2015) in the Garden of Eden. Management theories can be defined as a collection of ideas which set forth general rules on how to manage a business or organization. Theories are perspectives with which people make sense of their world experiences (Stoner et al., 2003, 31-32). The authors stressed that theory is a systematic grouping of interdependent concepts (mental images of anything formed by generalization from particulars) and principles (are generalizations or hypotheses that are tested for accuracy and appear to be true to reflect or explain reality) that give a framework to, or tie together, a significant area of knowledge.

Therefore, “contemporary theories of management tend to account for and help interpret the rapidly changing nature of today’s organizational environments” (Olum, 2004, 9). It is essential to apply relevant management theories in day to day operations of the organization as bad management theories are capable of having adverse effect on good management practices and affect productivity of workforce in the organization (Ghoshal, 2005). Management theories are majorly classified as:

- Classical management theories
- Neo-classical management theories
- Contemporary management theories

Each of the above listed theories shall be discussed briefly in turn, while that of Neoclassical that encompasses humanistic theories shall be fully discussed and applied to university library administrations.

4.1. Classical Management Theories

Management theories began with Classical theory that encompasses scientific management, administrative management and bureaucratic organization theories began in 15th century. According to Robinson (2005), management theorists in this school of thought include: Niccolo Machlavelli (1469-1527), who believed ‘the end justifies the means’; Henri Fayol (1841-1925), he believed in ‘command and control’; Max Weber (1864-1920), Mary Parker Follett (1868-1933), Fedrick Taylor (1856-1915), and Chester Bernard (1886-1961). Fedrick Taylor was fondly regarded as father of scientific management as he popularized the school of thought. These theorists anchored their philosophies on increased productivity of workers in the organization. According to Thenmozhi (2015), Fedrick Taylor rested the scientific theory on four basic principles:

- i. The development of a true science of management so that the best method for performing each task could be determined;
- ii. Scientific selection of workers so that the each worker would be given responsibility for the task for which he or she was best suited;
- iii. The scientific education and development of workers; and
- iv. Intimate friendly cooperation between management and labour.

General Features of Classical Management Theory

- i. Developed standard method for performing each job;
- ii. Selected workers with appropriate abilities for each job;
- iii. Trained workers in standard method, demonstrated the importance of personnel and their training;
- iv. Chain of Command - top level management, middle level management and first (low) level management;
- v. Division of Labour to enhance productivity - complex tasks are broken down into many simple tasks which can be easily performed by workers;
- vi. Supported workers by planning and demonstrated the importance of compensation for performance;
- vii. Delineated the management functions of planning, organizing, commanding, coordinating and controlling; and
- viii. Provided wage incentives to workers for increased output (Villasenor, 2012; Thenmozhi, 2015).

Limitations of Scientific Management Theory

- i. Does not appreciate social context of work and higher needs of workers;
- ii. Does not acknowledge variance among individual;
- iii. Unidirectional downward influence - one way communication. Decisions are made at top level and forwarded to downward for implementation;
- iv. Autocratic leadership style;
- v. Predicted behaviour – workers' behaviours of are predicted like machine;
- vi. Tends to regard workers as uninformed and ignored their ideas (Villasenor, 2012);
- vii. It brings unhealthy rivalry among workers leading to strain relationship among workforce;
- viii. Fear of being laid off among workers due to exhaustion of tasks to perform (Thenmozhi, 2015);
- ix. It affects health of workers as they struggle to work harder, faster and stay longer at work to earn more wages;
- x. Workers' frustration as management always demanding more work to be done;
- xi. It raises cost of production and the market price of end product might not be easily affordable by the general populace; and
- xii. Decline in organization profit and lead to employees rationalization.

Generally, classical management theory that was concerned with increasing the productivity of the organization and the individual worker. Each of its enumerated features can be applied to effective administration of university library. Few of the applications include: library tasks are performed following a developed standard method and no library job is done haphazardly. Also, professional library jobs like cataloguing and classification, abstracting and indexing, selective dissemination of information to mention a few are performed by the professionally trained personnel and not a nonentity. Besides, division of labour is practiced to enhance productivity. In the university library, tasks are performed by different categories of personnel (librarians) and not that the university librarian would be performing the whole functions. In other words, library is divided into various departments like technical, reference services, serials, ICT etc to enhance productivity.

4.2. Neo-classical Management Theory

Neo-classical management theory incorporates the behavioural approach to management. This approach emphasizes improving management through an understanding of psychological make-up of people (Adeyemi, 2016). The theory is humanistic in nature. The term humanistic is an approach to

management theory based on the idea of human needs and human values. Humanistic management theories were developed in the 20th century in reaction to earlier theories of classical management that emphasized productivity and profit above all other concerns (Thompson, 2016). It involves creating multiple levels of workers to improve productivity (Zeiger, 2016). Humanistic theories emphasized understanding human behaviour, needs, and attitudes in the workplace (Villasenor, 2012). Employees are seen not merely as economic assets valued primarily for their productivity but as people with complex needs and a desire for meaningful and varied daily tasks. The author stressed that humanistic theory is broadly divided into the following schools with their emphasis:

- i. Human relations movement - emphasized satisfaction of employees' basic needs as the key to increased worker productivity. For example Hawthorne studies that lasted for ten years.
- ii. Human resources perspective – suggested jobs should be designed to meet higher-level needs by allowing workers to use their full potential. For example Abraham Maslow's hierarchy of needs (1908-1970) who suggested that human needs are in phases and dynamic, as one need is satisfied another one will surface. Also, what satisfies an employee may not necessarily satisfy others. Douglas McGregor (1906-1964), theory X (assumed that people generally dislike work- will avoid it hence, they must be coerced, controlled, directed, or threatened with punishment) & Y (assumed people like work and seek responsibility and committed to it without being forced).
- iii. Behavioural sciences approach. Applies social science in an organizational context. Understands employees' behaviour and interaction in an organizational setting.

Implementing pure humanistic management concepts is difficult due to the complexity of human behaviour and of ethical questions in general, and it has many challenges. In other words, Humanistic management aims to address concerns that go beyond productivity but aims at meeting individual needs of employees in the organization. These theories believe that once employees' needs are fairly met, they would work tirelessly in achieving the stated goals and objectives of the organization.

It can be noted that while classical theories are not too keen about satisfying workers' needs but are majorly concerned with the productivity of workers in the organization, this may be counterproductive as such productivity may not be sustained for an unsatisfied worker is an unproductive worker; humanistic schools in the other hand, see workers satisfaction as a key factor that enhances real productivity of workers in the organization. This implies that a satisfied worker is a happy and productive worker; their productivity would be sustained as they would perform their duties joyfully knowing that their needs would be adequately met by the organization.

4.3. Benefits of Humanistic Management Theory

The university authorities could derive the following benefits if the humanistic theories are inculcate in the administration of the university libraries, these would enhance her rapid growth and development:

- i. Helps authority to understand employees needs and meet such to enhance productivity;
- ii. Enables individual worker to work towards achieving the stated goals and objectives of the organization;
- iii. Has potential to increase employee retention rate and productivity;
- iv. Increase employee productivity as their basic needs are fairly met; and
- v. Helps managers to understand the dynamism of human nature and needs, designing approach to handle individual employee in the organization (Zeigy, 2015).

Nevertheless, the following problems would affect the application of humanistic theories in the effective administration of the university libraries in which the authorities must urgently solved:

- i. Behavioural theorists could be seen as serving some powerful corporate interests, creating an ideology that disregard workers view;
- ii. The issue of workers increase production cannot be sustained as their productivity is directly connected to satisfying their various needs, once there is delay due to some forces beyond the control of the organization, their real commitment to the organization will decline;
- iii. The angle of hierarchy of needs satisfaction which insists that lower-levels needs must be satisfied before proceeding to a higher-level needs seem so rigid and run contrary to the dynamics of change which is a recurrent decimal in human development (Zeiger, 2015); and
- iv. Management is too emotional while striving to meet workers' demands. Labour leaders may capitalize on this to make nefarious demands from the organization.

4.4. Contemporary Management Theory

The contemporary theory encompasses system approach, situational or contingency, chaos and team building theories. The first two of these theories shall be discussed briefly and their major contributions to the effective university administration shall be highlighted:

4.4.1. *The System Approach Theory*

According to Thenmozhi (2015), the system approach to management views the organizations as a unified purposeful system composed of integral parts. The approach gives managers a way of looking at the organization as a whole and as a part of the larger external environment. The author stressed that system theory tells us that the activity of any segment of an organization affects in varying degree the activities of every other segment. Yalokwu (2006) observed that the system approach emphasizes the notion that an organization be seen as a total system which has interrelated parts with a single goal. This implies that the university institution can be regarded as a system that has various segments that are interrelated to meet its set goals. Among these segments of the university is the library that serves as the bedrock of every programme and research efforts in the university system.

The contribution of the system approach theory to library is that library managers (librarians) look at the university system more broadly. It has also enabled librarians to interpret library services along the programmes of the university, see how to acquire and organize relevant educational resources to meet the overall goals of the university. Here, library is regarded as a total system that has interrelated parts (departments) with a single goal - supporting the curricula and research activities of the university.

4.4.2. *Situational or Contingency Theory*

The situation approach according to Thenmozhi (2015), sometimes called contingency approach theory was developed by the managers, consultants and researchers who tried to apply the concepts of the major schools to the real life. Adeyemi (2016) posited that when managers make a decision, they must take into account all aspects of the current situation and act on those aspects that are keys to the situation at hand. In the same vein, Hui and Islam (2012) asserted that the theory is an approach to the study of organizational behaviour in which explanations are given as to how contingent factors such as technology, culture and the external environment influence the design and functions of organizations.

The contribution of this theory is that it allows librarians to analyse a situation and determine what factors that could influence the decision with which they are concerned to achieve a predetermined goal of the library. The theory also features in library in occasions such as when the request for some library materials are on the high demand by the users, those materials on reserve can be loaned out to such information seekers to meet his/her urgent information needs. At times books that are labelled

'reference collections' could be borrowed for some days or over the weekend. This looks like violation of library regulation but it is warranted by the situation (Adeyemi, 2016). Others in this school include: chaos and team building theories that could be applied for the effective administration of the university library.

5. Application of Humanistic Management Theories in the University Library

While applying humanistic theories in the effective administration of the university libraries, the authors of this paper adapt the position of *Humanistic Management Center* cited in Thompson (2016, np), that "management must include three key dimensions to be considered humanistic. The first is a respect for the basic dignity and humanity of employees, customers and anyone else affected by the company's actions. The second is that all business decisions must include thoughtful ethical analysis. The third is that business decisions should be made in dialogue with all those who will be affected by them".

- i. **Human Dignity:** Respect for the inherent dignity of employees is one of the defining characteristics of humanistic management (Thompson, 2016). The University Librarian (UL) should give due respect and recognition to the intellectual acumen of his/her professional colleagues knowing that a tree cannot make a forest. The university library administration should reflect opinion and input of other librarians. In other words, UL should embrace total inclusiveness leadership style. The idea of single handedly running library administration should be jettisoned in this 21st century librarianship.
- ii. **Ethical complexities:** Humanistic management theory initially concentrated on the relationship between the company and its employees and between employees and their work (Thompson, 2016). It deals with different human ethical complexities to enhance their productivity in the organization. The operations of libraries especially university libraries are generally bedevilled by some number of complex ethical issues like copyright, accessibility, censorship, intellectual property, information security, use and misuse of information, freedom of information, professional development, fee based library services and privacy/confidentiality. These complex ethical issues are to be thoughtfully analysed, so as to get in-depth knowledge of their damaging effect on the librarianship profession, prevent their destructive expansions and then profile solutions to them. They can be tackled professionally by librarians themselves and/or by the concerned government authorities so as to provide effective library services to various information seekers and to ensure effective administration of the university library.
- iii. **Identifying Stakeholders.** Humanistic management theories include the concept that business decisions should be made in consultation with various stakeholders. A stakeholder is any person or group of people who will be affected by a business decision (Thompson, 2016). Following this assertion of Scott Thompson, the stakeholders of any university library are her esteemed users. These are made up of: students, lecturers, researchers and all other staff of the university community that consult the library collections for their information needs. These set of library users must be carried along during selection, acquisition and organization of the library resources to adequately meet their information needs. Periodically, librarian should carry out users' education in order to serve the academic community to meet their academic goals. Thus, librarians should be users' friendly knowing that he is employed because of users; hence, he/she must be approachable and ready to serve at all time.
- iv. **Creating multiple levels of workers to improve productivity** (Zeiger, 2016). This is simply division of labour. In the university library, tasks are divided along different department and performed by categories of library personnel. There are three categories of library personnel:

professional librarians, para-professional (library officer cadres) and supporting staff (clerks, library assistants, computer operators, secretaries and others that are not librarianship certificated). These personnel are created and developed through in-house and out-house trainings in order to enhance productivity in the library.

- v. **Standard method of operations.** There are different operations that are performed by the library personnel and their operations are guided by some measurements so as to maintain standard in the library operations. It should be noted that university library engages the services of diverse population of workers; likewise serving different categories of users, hence, its services must be adequately guided by some set of rules and regulations so as to ensuring sanity in the system. These should be put in place by the highest management level of the university and it must not entail the personal view of the head librarian.

6. Conclusion and Recommendations

It can be observed that no single theory is suitable for effective management of an organization. To determine how best to apply any theory, organizational situations should be evaluated separately to determine which theory to apply. Therefore, in order to solve some of the problems that would emanate while applying the humanistic theories in the administration of the university libraries, the following solutions are proffered as the way forward:

- i. A deep information about individual worker is needed to know appropriate and relevant motivation strategy to apply in order to get the best performance from each library personnel.
- ii. Individual worker must not be treated in isolation, but must be seen as a member of a group bearing in mind the positive result of the group mentality and team work efforts.
- iii. Globalization which has made the world a global village demands that employers should think and apply the synergy of globalization to local conditions for their benefits.
- iv. Strategic and tactical levels of management should be aware of the needs of workers and adequately cater for them so as to sustain systematic growth of the university and her programmes. This would encourage workers to collaborate with the management to achieve its stated goals rather than working against such.
- v. Effective communication between management and labour union leaders in the organization should be encouraged in order to sustain and improve the level of growth in the organization. This makes employees contribute to the formation of policies for the organization.
- vi. It is therefore recommended that a combination of management theories would be ideal as they may help increase workers' productivity and service quality.

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Periscoping the Relationship between Motivation Factors and Measures of Productivity for Librarians in Federal Health-based Institutes in Abuja, Nigeria

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Abstract This study was carried out in seven Nigerian health-based institutes with the aim of finding out the relationship existing between motivation factors available and measures of productivity applied for rating Librarians in the population studied. A descriptive survey design approach was taken to study a population of 18 Librarians in the seven establishments (out of this number, 17 (94.4%) were actually used). Questionnaire was the research tool used to collect data which were presented in tables and analyzed using descriptive statistics. The Pearson Product Moment Correlation coefficient (r) method was applied to determine the relationship while hypothesis was tested with t-statistics at 0.05 probability level. Results show that a positively significant relationship ($P > 0.05$), r (0.97) exists between motivation factors available and measures of productivity applied for Librarians in these centres. The key motivation factors identified are job security, recognition of status, career advancement opportunity et cetera. Major measures of productivity identified were seminar papers, journal article publication, technical reports and abstracts/bibliography and these cut across all the centres. The study showed that there were differences in the application of measures of productivity within the institutes.

Keywords *Health Facilities-Nigeria; Health Research; Information-Health; Librarians; Motivation Factor; Productivity-Measures*

1. Background

There are two common motivational stands that have kept great men and people going in whatever task before them. These are (i) that until one is moved, nothing moves for him because no man becomes except he begins; and (ii) that until there is a willing attitude, there would not be a winning altitude. These stands seem to come in play on issues concerning demand for motivation and performance (productivity) in the Nigerian civil service where this study is geographically focused. The Nigerian civil service is composed of staff of various disciplines including Librarians. And these are employees who have received professional training on the administration and management of Library and Information Services and Sources.

Upon appointment, a Librarian is expected to grow from the beginning rank of Librarian II (equivalent of a Graduate Assistant in a University) through Director of Library and Information Services (the peak of the profession in civil service); however there may be differences in nomenclature in various institutes. In between the ranks, s/he is expected to grow or be promoted with some evidence of productivity from the job schedule (FMOH-NIPRD, 2010). To provide evidences of productivity, civil service personnel in Nigeria in addition to their inner wills, do most times demand for some motivational packages as enabling media. What is not known is the measure of willingness of individual staff to be productive.

Be this as it may, motivation as for Rabey (2001) encompasses an internalized drive that is more dominant in an individual at a given moment. It is believed that it cannot be prompted for one by another but an enabling environment could only be created to aid that person's realization of himself by making a choice to respond to his inner motivation. Request for motivation factors in reality, go beyond enabling environment and this may be what the civil service staff in Nigeria craves for. All the same, it is a global knowledge according to Rabey (2001) that motivation is a critical factor for consideration in all human productive endeavours whether it is internal (coming from oneself) or external (influence by other external factors). This work is concerned with the external factors that bring about motivation and which encourages productivity.

Productivity as used here is the inert achievement of rapid, sustainable as well as measurable improvements in operations. In his doctoral thesis, Ugwuona (2013), described productivity with reference to research productivity as the gain or the output obtainable for the use of certain input in a research process. In most government establishments over the globe, productivity is seen as a key factor for growth and achievement and consequently it is considered a dependent factor for allocation of resources by many authorities in Nigeria.

In this study therefore, focus is on federal health-based institutes in Abuja, Nigeria as listed in the Nigerian Institutional Directory (2014). These include: (1) **Federal Medical Centre (FMC) Abuja**- Established in year 2012 as Federal Staff Hospital to cater for the provision of tertiary health care for Nigerians and other clients registered with the hospital. It is located at the Jabi – Airport Road in Idu Industrial Area axis of Abuja with about 950 staff strength of which two are Librarians. The Chief Medical Director is Dr. C.I. Igwilo; (2) **Gwagwalada Specialist Hospital (GSH)**. Also known as University Of Abuja Teaching Hospital, was instituted in 1994 as Specialist Hospital and later became the University of Abuja Teaching Hospital, headed today by Dr. P. Alabi and located at the Specialist Hospital Road in Gwagwalada, Abuja. It provides special and tertiary health care to Abuja residents and other states around the federal capital territory in addition to its teaching hospital role. There are four Librarians in a staff population of over 4000; (3) **Institute of Human Virology Nigeria (IHVN)** - This was established in 2004 via the assistance of the Institute of Human Virology in Baltimore, USA to address the HIV/AIDS crises in Nigeria through development of infrastructure for treatment, care, prevention and support for people living with and those affected by HIV/AIDS, Cancer, Tuberculosis, Malaria and other diseases. It is located at Plot 252 Herbert Macaulay Way in the Central Business District. The Executive Director is Dr. Alash'le G. Abimiku. The Centre has 415 staff at present of which one is a Librarian; (4) **National Biotechnology Development Agency (NABDA) Abuja**: Established in 2001 to promote and coordinate Biotechnology Research and Development processes and products that would respond to national aspirations on food security, affordable health care, job and wealth creation. The Director is Prof. Lucy Ogbadu. It is located near Trade Fair Complex in Lugbe, along Airport Road Abuja. It has staff strength of 948 with three Librarians; (5) **National Food and Drug Administration and Control (NAFDAC)** - Established by Decree 15 of 1993 which had undergone amendments in 1999 and 2004. The institute has the mandate to regulate and control the manufacture, importation, exportation, distribution, advertisement, sale and use of foods, drugs, cosmetics, chemicals, detergents and medical devices in order to safeguard the public health of the nation. The Director General/Chief Executive Officer is Dr. Paul B. Orhii. The Head Office is on Plot

2032, Olusegun Obasanjo Way, Zone 7, Wuse District. The organization has 2,239 staff strength with one Librarian. (6) **National Hospital Abuja (NHA)** Formerly National Hospital for Women and Children - This Centre was created by Act 36 of 1991 and opened in October, 1999 to cater for the needs of women and children in Nigeria and West African sub region with a view to reducing morbidity and mortality rates and to carry out research into peculiar causes of women and children related disease in Africa. It is located along the Independence Avenue of the Central Business District of Abuja. It has over 3000 staff members with four Librarians (one of them, a Youth Corps member at the period of this research) The Chief Medical Director is Dr. J.A.F. Momoh; (7) **National Institute for Pharmaceutical Research and Development (NIPRD)** - The institute was established in 1989 as a result of an agreement between the Federal Government of Nigeria and the Pharmaceuticals Manufacturers' Group of the Manufacturers' Association of Nigeria (PMG-MAN). The institute has interest in drugs' development and formulary but also runs a clinic for patients within the environs. It has about 296 staff strength including four Librarians (one out of this number is on sabbatical at this period). It is located in Plot 678/690 at the Phase II of the Idu Industrial Area, Abuja. The Director General/Chief Executive Officer is Prof. K.S. Gamaniel.

All these institutes as described above have civil servants in their employ and in various disciplines including Librarianship. The order of placement and promotion requirements for Librarians in them is similar. What could be different is the sort of motivation applied and the yardstick for rating the productivity of staff therein. Although Card (2006), insists that there is no international standards on productivity measure; Monir and Keith (2002) and Argyris, (2005) have shown some pertinent measures for assessing productivity especially in either academic or core research environment. Some important ones include the number of faculty members, number of publications- books and journal articles, journal impact factor, registered patents, citation counts, number of products on shelf et cetera. On the other hand, Chaudhary and Sharma (2012) had presented different factors that could generally be helpful in motivating employees to be productive. Some of these are recognition of status, organizational climate, career advancement opportunity, job enrichment, employee recognition programmes, job security, employees' participation, employees' empowerment and work tools availability. This article is not looking at identifying these factors again rather it is a study with different objectives and mindset.

2. Statement of the Problem

It is known as an age long practice that the reason for motivating employees is primarily to enhance productivity. However there is still an unattended gap in Library and Information Science research about identifying the relationship existing between the motivation factors and measures of productivity. Put in a question form, this study intends to know "how does motivation factors relate with measures of productivity in the population chosen?" Thus in order to fill this research gap, the paper attempts to discover the existing relationship between the two variables (as they are applied for Librarians), in the seven federal health-based institutes in Abuja, Nigeria.

3. Purpose of the Study

The purpose of this study is to determine the relationship existing between motivation factors and measures of productivity for Librarians in the federal health-based institutes in Abuja, Nigeria. Specific objectives are: To find out the key motivation factor/s encouraging Librarians productivity in these institutes; To determine if there could be other ways to better motivate Librarians other than the existing forms; To discover the main measures of productivity for Librarians in the population; and to determine if there are differences in the measures of productivity applied in the institutes under study.

4. Research Questions

The following questions were advanced for the study.

1. What relationship exists between motivation factors and productivity indices in these health-based institutes?
2. What are the key motivating factors for librarians in these study centres?
3. Are there other different ways by which librarians in this population could be motivated?
4. What could be the major measure of productivity used to rate librarians in these health facilities?
5. Are there differences in the application of the measures of productivity in these institutes?

5. The Null Hypothesis

There is no significant relationship between motivation factors and productivity indices in the federal health-based institutes in Nigeria.

Alternative hypothesis (H_a): There is significant relationship between motivation factors and productivity indices in the federal health-based institutes in Nigeria.

6. Significance of the Study

This study would directly add to existing literature on motivation and productivity especially in the area of health-based institutes in the country and will serve as a template to the need for employee motivation. The result will aid both employers and the employed in decision-making with regards to demands for external motivation packages and as well, expected performance of employees who are being motivated. The result will be relevant to human resources managers.

7. Scope of the Study

This study is primarily concerned with the health-based institutes established and funded by the federal government of Nigeria, which provide health care services to citizens of the country. The content scope is limited to motivation factors, measures of productivity used for librarians and the relationship between the two variables; motivation factors and productivity indices.

8. Literature Review

There are few literature sources bearing relevance to studies on relationship between motivation factors and measures of productivity across the globe but particularly in Nigeria. Some of the available literature has presented so many theories from which four classified factors were identified to drive impact on productivity of employees. Lawrence and Jordan (2009) recorded these four classified motivation drives as (1) the inbuilt need that seeks to be identified with great achievements (2) the need to be affiliated to strong and powerful individual (3) the need to gain dominance and (4) the need to be autonomous. Upon these drives however, it was noted that people have very different interpretation of motivation and the strategies that are employed to achieve it.

In the Nigerian Civil Service regulations as exemplified in NIPRD (2010) Scheme/ Conditions of Service, motivation programmes were not explicitly spelt out except for salaries, promotion guidelines and training schedules. In contrast to this provision, Levoy (2009) in his proposal, advocated for eco-friendly policies which are not easily found within the Service system of Nigeria rather bureaucratic policies are readily available. As for Levoy (2009), the later would incidentally de-motivate the employee who would like to (as a result), spend little effort on the job; avoid the work place and exit the organization at any given opportunity. This effect of poor motivational packages in the service scheme is corroborated by the work done by Anyaoku (2016) where she found that fair remuneration,

lack of training and retraining, provision for job performance and equal rights issues were major areas of dissatisfaction amongst Librarians in a study of demographic determinants of quality of work life of Librarians in Nigeria.

Another empirical study on the motivation factors of employees in Nigeria by Aworemi, Abdul-Azeez and Durowoju (2011) found that good working condition; interesting work and good salary would motivate employees to be highly productive. The study proposed that job enrichment, job enlargement, promotions, internal and external stipends, monetary and non-monetary compensations for employees were necessary to encouraging their loyalty and productivity. From the other part of the globe, studies on the need for motivation factors in propelling productivity of the employees have also been carried out in the United States by Jerry (2012) and in Kuwait by Jarkas and Radosavljevic (2013). Their studies show that payment delay, lack of financial incentives, low budget, extent of change orders, poor information, unrealistic scheduling, poor supervision and shortage of materials are all de-motivating factors that could cause low productivity in work places.

Thus far, in this review of literature, the gap still exist of the knowledge of the relationship between motivating factors and productivity indices which the present study seeks to address.

9. Methodology

This work is presented as a descriptive survey design. The population of the study comprises 18 Librarians employed in the seven federal health-based institutes in Abuja, Nigeria. Questionnaire was used to collect data. Questionnaire item/s that appeared in Likert scale (where applicable) had four-point weight and a criterion mean of 2.5. Decision was taken as accepted or rejected based on the value when compared with the criterion mean. Returned questionnaire were 17 (94.4%) and these were used for the study. The researcher used the descriptive statistics for analyses and presented results in tables. Data obtained from the open-ended questionnaire items were analyzed to form opinion/s which they represent. The Pearson Products Moment Correlation Coefficient was applied in discussing relationship existing between the two variables as sought in research question one. The null hypothesis was tested using t-statistics at 0.05 level of probability.

10. Presentation of Results

Research question 1; sought to discover the relationship between motivation factors and measures of productivity in the population studied. This is shown in the tables below as derived from the raw data (see appendices). In so doing, the mean values of motivation factors (X) in the aggregated **Table 1** is correlated against mean values of measures of productivity (Y) in **Table 2**. The correlation values are shown in **Table 3** and Numbers 1-9 in this table are the representative numbers standing for both items in motivation factors (X) and measures of productivity (Y).

Table 1: Aggregated motivation factors as available in the seven Health-based institutes

| S/n | Motivation factors | NIPRD (4) | NAFDAC (1) | NABDA (3) | FMC (2) | GSH (3) | IHAVN (1) | NHA (3) | Total (17) | Mean (X) |
|-----|---|--------------|---------------|--------------|------------|------------|--------------|------------|---------------|-------------|
| 1 | Recognition of Status | 13 | 03 | 07 | 07 | 09 | 03 | 08 | 50 | 2.9 |
| 2 | Good organizational climate | 10 | 03 | 06 | 06 | 10 | 03 | 08 | 46 | 2.7 |
| 3 | Career advancement opportunities | 12 | 03 | 08 | 05 | 09 | 02 | 08 | 47 | 2.8 |
| 4 | | 10 | 03 | 07 | 06 | 08 | 02 | 07 | 43 | 2.5 |
| 5 | Job enrichment | 08 | 03 | 05 | 04 | 08 | 02 | 03 | 33 | 1.9 |
| 6 | Employee recognition programmes Job security | 14 | 03 | 08 | 06 | 10 | 03 | 07 | 51 | 3.0 |

| | | | | | | | | | | |
|---|----------------------|----|----|----|----|----|----|----|----|-----|
| 7 | | 08 | 03 | 07 | 04 | 07 | 02 | 05 | 36 | 2.1 |
| | Employee's | 09 | 03 | 05 | 04 | 08 | 02 | 08 | 39 | 2.3 |
| 8 | participation in all | 12 | 03 | 07 | 06 | 08 | 03 | 07 | 46 | 2.7 |
| | decisions | | | | | | | | | |
| 9 | Staff empowerment | | | | | | | | | |
| | Availability of work | | | | | | | | | |
| | tools | | | | | | | | | |

Table 2: Aggregated measures of productivity as applied in the seven Health-based institutes

| S/n | Productivity indicator | NIPRD (4) | NAFDAC (1) | NABDA (3) | FMC (2) | GSH (3) | IHVN (1) | NHA (3) | Total (17) | Mean (Y) |
|-----|----------------------------|--------------|---------------|--------------|------------|------------|-------------|------------|---------------|-------------|
| 1 | Journal publication | 16 | 01 | 05 | 06 | 05 | 03 | 06 | 42 | 2.5 |
| 2 | Main line book publication | 12 | 01 | 05 | 04 | 05 | 03 | 06 | 36 | 2.1 |
| | Book chapter contribution | | | | | | | | | |
| 3 | Technical reports | 10 | 01 | 05 | 04 | 08 | 03 | 06 | 37 | 2.2 |
| 4 | Conference papers | 11 | 01 | 05 | 06 | 08 | 03 | 08 | 42 | 2.5 |
| 5 | Seminar papers | 11 | 01 | 05 | 04 | 07 | 03 | 09 | 40 | 2.4 |
| 6 | Abstracts/Bibliographies | 14 | 01 | 05 | 04 | 09 | 03 | 08 | 44 | 2.6 |
| 7 | Patents | 12 | 01 | 05 | 08 | 08 | 03 | 06 | 43 | 2.5 |
| 8 | Supervision of higher | 10 | 01 | 05 | 04 | 06 | 02 | 06 | 34 | 2.0 |
| 9 | degrees | 11 | 01 | 05 | 04 | 07 | 02 | 08 | 38 | 2.2 |

Table 3: Correlation between motivation factors (X) per librarian and measure of productivity (Y) per librarian in the population

| Item rep. no | Motivation factor mean (X) | Productivity indicator mean (Y) | X ² | Y ² | XY |
|--------------|----------------------------|---------------------------------|------------------------|------------------------|-----------|
| 1 | 2.9 | 2.5 | 8.41 | 6.25 | 7.25 |
| 2 | 2.7 | 2.1 | 7.29 | 4.41 | 5.67 |
| 3 | 2.8 | 2.2 | 7.84 | 4.84 | 6.16 |
| 4 | 2.5 | 2.5 | 6.25 | 6.25 | 6.25 |
| 5 | 1.9 | 2.4 | 3.61 | 5.76 | 4.56 |
| 6 | 3.0 | 2.6 | 9.00 | 6.76 | 7.80 |
| 7 | 2.1 | 2.5 | 4.41 | 6.25 | 5.25 |
| 8 | 2.3 | 2.0 | 5.29 | 4.00 | 4.60 |
| 9 | 2.7 | 2.2 | 7.29 | 4.84 | 5.94 |
| | ΣX= 22.9 | ΣY= 21.0 | ΣX ² = 59.4 | ΣY ² = 49.4 | ΣXY= 53.5 |

From Table 3 above and using Pearson Product Moment Correlation (PPMC) formula;

$r = \frac{N\sum XY - \sum X\sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2)(N\sum Y^2 - (\sum Y)^2)}}$, the correlation coefficient r, is calculated wherein $\sum X= 22.9$, $\sum Y= 21.0$, $\sum X^2= 59.4$, $\sum Y^2= 49.4$ and $\sum XY= 53.5$

Thus, $r = \frac{17 \times 53.5 - 22.9 \times 21.0}{\sqrt{(17 \times 59.4 - (22.9)^2) \times (17 \times 49.4 - (21.0)^2)}}$
 $= \frac{909.5 - 480.9}{\sqrt{(1009.8 - 524.41)(839.8 - 441.0)}} = \frac{428.6}{\sqrt{485.4 \times 398.8}} = \frac{428.6}{440} = 0.97$

$r = 0.97$

$r = 0.97$

10.1. Testing the Hypothesis

The Alternative hypothesis (**H_a**) was stated as: There is significant relationship between motivation factors and productivity indices in the federal health-based institutes in Nigeria. Now Table 4 was established to show the test for this statement.

Table 4: T- statistics for the significance of the relationship between motivation factors and measures of productivity in the study population

| Correlation coefficient (r) | t-cal | N | Df (N-2) | t-critical | Decision |
|-----------------------------|-------|----|-------------|------------|----------------------------|
| 0.97 | 15.3 | 17 | 15 | 1.8 | H _a is accepted |

From formula $t = r\sqrt{n-2}/\sqrt{1-r^2}$; where $n = 17$ and $r = 0.97$. Then,

$$t = 0.97\sqrt{15/1 - (0.97)^2} = 0.97\sqrt{15/1 - 0.94} = 0.97\sqrt{15/0.06} = 0.97 \times \sqrt{250}$$

$$t = 0.97 \times 15.8 = 15.3$$

$$t_{.05 \ 15} = 1.8$$

$t_{\text{calculated}} > t_{\text{critical}}$ hence, the test is positively significant ($t_{\text{cal}} = 15.3 > t_{\text{critical}} = 1.8$)

Research question 2 intended to discover the key motivating factors for Librarians in the study population. **Table 1** gave insight to the answer as six motivation factors were found to have values equal or above the criterion mean. These factors are job security (3.0); recognition of status (2.9); career advancement opportunity (2.8); good organizational climate (2.7); availability of work tools (2.7) and job enrichment (2.5) in that order.

For **research question 3**, opinions presented by respondents show that the majority did not include other different ways to motivate Librarians. However, responses from NIPRD and IHVN Abuja pointed to the fact that instant promotion of staff as at when due and direct involvement of the institute's authority in footing the bill for conferences, workshops and seminars attended by the staff could be a lead-way.

In response to **research question 4**, reference is made to **Table 2**. Here, the major measures of productivity used in rating Librarians in the population were established. These are seminar papers (2.6); journal publication (2.5); technical reports (2.5) and abstracts/bibliographies (2.5). This table presented aggregated measures of productivity and only these four had values equal or above the criterion mean of 2.5.

Finally for **research question 5** which sought to find out differences in the application of these measures of productivity within the seven institutes studied, the following table is considered.

Table 5: Mean responses on measures of productivity used for Librarians per institute under study

| Productivity indicator | NIPR | | NAFDA | | NABD | | FMC | | GS | | IHV | | NHA | |
|-------------------------------|----------|-----|----------|-----|----------|-----|-----|-----|----------|-----|----------|-----|-----|-----|
| | D (4) | X | C (1) | X | A (3) | X | (2) | X | H (3) | X | N (1) | X | (3) | X |
| Journal publication | 16 | 4.0 | 01 | 1.0 | 05 | 1.7 | 06 | 3.0 | 05 | 1.7 | 03 | 3.0 | 06 | 2.0 |
| Main line book publication | 12 | 3.0 | 01 | 1.0 | 05 | 1.7 | 04 | 2.0 | 05 | 1.7 | 03 | 3.0 | 06 | 2.0 |
| Book chapter contribution | 10 | 2.5 | 01 | 1.0 | 05 | 1.7 | 04 | 2.0 | 08 | 2.7 | 03 | 3.0 | 06 | 2.0 |
| Technical reports | 11 | 2.8 | 01 | 1.0 | 05 | 1.7 | 06 | 3.0 | 08 | 2.7 | 03 | 3.0 | 08 | 2.7 |
| Conference papers | 11 | 2.8 | 01 | 1.0 | 05 | 1.7 | 04 | 2.0 | 07 | 2.3 | 03 | 3.0 | 09 | 3.0 |
| Seminar papers | 14 | 3.5 | 01 | 1.0 | 05 | 1.7 | 04 | 2.0 | 09 | 3.0 | 03 | 3.0 | 08 | 2.7 |
| Abstracts/Bibliographies | 12 | 3.0 | 01 | 1.0 | 05 | 1.7 | 08 | 4.0 | 08 | 2.7 | 03 | 3.0 | 06 | 2.0 |
| Patents | 10 | 2.5 | 01 | 1.0 | 05 | 1.7 | 04 | 2.0 | 06 | 2.0 | 02 | 2.0 | 06 | 2.0 |
| Supervision of higher degrees | 11 | 2.8 | 01 | 1.0 | 05 | 1.7 | 04 | 2.0 | 07 | 2.3 | 02 | 2.0 | 08 | 2.7 |

From **Table 5** above, the following differences could be established.

In NIPRD, all the measures of productivity are in application because their criterion mean equaled or exceeded 2.5; in NAFDAC and NABDA, none of the productivity measure is applicable; in the FMC, only three measures are applied in the following order (Abstracts/Bibliographies, Journal publication and Technical reports); in GSH, four of the measures are applied in the order of Seminar papers, Book chapter contribution, Technical reports and Abstracts/Bibliographies; In IHVN, all but Patents and Supervision of higher degrees are applicable to Librarians while in NHA, four measures also apply in the order of Conference papers, Technical reports, Seminar papers and Supervision of higher degrees.

11. Discussion of Results

From the preliminary information gathered from the institutes and staff covered by this study, findings show that the number of Librarians employed in the Nigerian health-based institutes in Abuja, the Federal Capital Territory of Nigeria is grossly inadequate. This is because only 18 out of over 11, 848 staff members in seven institutes are Librarians. With this number, it is clear that health information synthesis and dissemination could be in its poorest state. And if this is so in Nigeria, what could be the fate of other African nations, particularly the Sub Saharan region?

Considering the research questions, results provided in Tables 1 through 3 were vital in determining the correlation coefficient (r) for the two variables which were motivation factors and productivity indices. The value of r (0.97) gave rise to the calculated t -value of 15.3 which was found to be more than the t -critical value of 1.8 thus, the relationship existing between the variables was very positively significant therefore, the working hypothesis (H_a) was accepted. This result supports the old age administrative strategy of motivating employees in order to ensure high productivity. It also upheld the findings of the study by Aworemi, Abdul-Azeez and Durowoju (2011) who found that good working conditions, incentives and financial inducements could motivate employees to be highly productive.

This work also found (Table 1) that the key motivating factors for Librarians in the population studied were job security, recognition of status, career advancement opportunities, good organizational climate, availability of work tools and job enrichment. Reasons behind these options were not given but one could attest to the fact that because of highly restricted job opportunities in the country of over 170 million people coupled with economic hardship and poor recognition of and attention to Librarianship profession, these motivating factors became pre-eminent. Although the conditions of service for the civil servants in the country captured some motivating factors, very few establishments follow such rules religiously. Probably, this informs why respondents choose to emphasize more on promotions and short - term trainings through workshops and seminars when asked to suggest other motivating factors of their choice. This finding seems to corroborate that of Anyaoku (2016) who opined that Librarians in Nigeria are not satisfied with some motivational packages like trainings, remunerations, job performance, commendations and equal right issues.

In determining the major measures of productivity as applied in the population, the study found that four of them were common amongst the seven establishments. These were seminar papers, journal articles, technical reports and abstracts/bibliographies (see Table 2). Sequel to the proposition made by Argyris (2005), that though measures of productivity could vary according to institutions, the well-known ones may include publications in peer reviewed journals (especially in an academic environment), products on shelf, number of registered patents et cetera. Considering the findings here, it means that measures of productivity applied for Librarians in the population under study are within the acceptable standard. However, a good number of the conventional measures were not applicable in most of the centres like NAFDAC, GSH, NHA, NABDA and FMC. This could be because GSH, FMC and NHA are run for pure hospitals services while NAFDAC is a regulatory health agency

and NABDA has not really established a Library after fifteen years of existence (2001 to January 2016, when this study was carried out) and despite having three Librarians in its employ. These Librarians work as administrative staff and are treated as such since their recruitment.

Finally, the differences in application of the measures of productivity in these institutes could be attributed to the fact that NIPRD and IHVN (where all the factors were nearly applied) are pure health research centres and the other institutes are not. In addition to this, each of the institutes has autonomy of decisions and actions as a government agency. Because of this autonomy, each could dictate what happens to its staff welfare and advancement without recourse to the Federal Civil Service regulations. One curious difference noted was the issue of supervision of higher degrees as accepted in NHA. As a hospital, it is not common to have Librarians in such establishment judged with this factor. And this is considered as part of the limitation recorded during data collection.

12. Conclusion

The study on 'periscoping the relationship between motivation factors and measures of productivity in federal health-based institutes in Abuja Nigeria has revealed much in the practice of Library and Information Science in the country. In concluding this study therefore, the following statements are presented.

- 1) The inadequacy of Librarians in the health sector studied calls for concern. Government attention is highly needed to address the anomaly even as the World Health Organization is interested and committed to enabling easy access to health information for all in the 21st century.
- 2) Since the relationship of the two variables was found positively significant, effort should be enhanced in the provision of reward systems for Librarians in the civil service of all the three tiers of government in Nigeria and a legislative back-up put in place to ensure its even implementation.
- 3) All the three tiers of government should provide policies that could also enable the privately owned establishments to put in place, reward systems for Librarians which could project the same motivating factors enjoyed by government employees.
- 4) Measures of productivity as contained in the Civil Service regulations for any given profession should be evenly applied to all employees in such profession. This action would eliminate disparities within cadres operating in the same government employ.
- 5) Establishment of Libraries that could support research should be a first part priority for running a research institute because this would encourage documentation and access to research information and results.

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Pollution Control Research Output in India from Scopus Database: A Scientometric Analysis

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Abstract The Scientometric study examines the research contribution of India towards pollution control by date indexed in Scopus database for 12 years from 2003 to 2014 using different qualitative and quantitative measures. Related relevant literature was reviewed. It has been identified that a total number of 28445 research publications were published during the above cited period. It is identified that 160 research institutions of India were responsible for placing India in the 3rd place for publishing 1551 publications and also to highlight the h-index gained by the top 15 institutions. Further, the analysis revealed the wise country publications with ranking and the share of India towards research publications with citations along with the type of documents. The impact of relative research effort analyzed through Publication Efficiency Index. The funding agencies are requested to allocate more funds to do many more research on Pollution Control for the betterment of the society.

Keywords *Scientometric; Pollution Control; Citation Analysis; Bibliometrics; Scopus*

1. Introduction

Pollution control was a term used in environmental science and management. Without pollution control, the waste products from over consumption, heating, agriculture, mining, manufacturing, transportation and other human activities, whether they accumulate or disperse, will degrade the environment [1]. Many of pollution control and environmental laws were enacted in the early 1970s to protect public health and welfare. A substance is considered as the pollutant, and the same has been perceived to have an adverse effect on human health, which has to be controlled towards developing a healthy society. Therefore, our industrial society needs the accurate quantitative risk assessment to evaluate the protection afforded by various levels of pollution control. We must also remain aware that determination of safe levels of pollutants based on risk analysis is a temporary measure until the mechanism of the damage done by the pollutant is understood [13].

Within India, Maharashtra state was the front runner to enact Water Pollution and Control Act in 1962. This was followed by passing of Comprehensive environmental Protection Bill for prevention of air pollution in 1983. Maharashtra, Gujarat, Madhya Pradesh were the first states in Indian union to have

pollution control board with attached analytical laboratories. The pollution control is an essential field of research in the contemporary world. If there is no proper strategy for pollution control, the waste products emanate from consumption, heating, agriculture, mining, manufacturing, transportation and other activities of the society will degrade the environment. However, the present pollution control techniques continue to reduce risk, but some more innovative technology oriented solutions are solicited in this field for the goodness of the society. In the present study analysis in the field of pollution control related research publications contributed in the SCOPUS database from 2003 to 2014.

2. Review of Literature

Vijayalakshmi S. and Ambuja R., (2013) [2] explains about the growth of literature, the degree of collaboration, and Relative Growth Rate and Doubling time on "Remote Sensing literature in Scopus database: A bibliometric analysis." Ritu Gupta, Kumbar B.D., and Rishi Tiwari, (2014) [3] reveals the research performance of 25 leading universities research output, citations and International collaborative papers on Ranking of Indian Universities in Social Sciences using bibliometric indicators during 2008-12. Raju N.G., (2014) [4] in his paper entitled "Ranking and Scattering of Journals in Physics: A Quantitative Study" shed a light about the International Journal of information dissemination and technology papers into bibliographic form-wise distribution, ranking and scattering of journals, the productivity, the obsolescence of literature and half-life of journals citations.

Zell, H. et al., (2010) [5] has analyzed his Air pollution researches during the period from 1955 to 2006, 26,253 items were listed through web of science database. From the study identified 124 countries in 24 different languages. Further they analyzed citation levels, most productive countries; highest number of author's publications and his citation range, most productive subject area and journals are analyzed. Dobrot, Marina et al., (2013) [6] has examined his research Europe Union member countries air pollution per inhabitant, using a novel statistical approach I-distance method. His study measuring the air pollution per inhabitant and evaluating the measurement by ranking that the worst situation occurs in Luxembourg, Bulgaria, Ireland, Estonia, and Greece, while situation in Sweden, Portugal, Germany, Slovakia, and United Kingdom is much better with far less air pollution per inhabitant. That paper also seeks to explain the results of ranking and abilities of specific countries to scope with the environmental problems such as air pollution.

3. Objectives

- a) To find out the country wise publications, share and ranking
- b) To find out the year wise growth of literature using worldwide and India
- c) To analyze the year wise citations
- d) To find out the year wise International collaborative papers
- e) To find out the country wise Indian Collaborative publications
- f) Top 15 authors and institution wise contributions
- g) To find out the type of documents involved in the research output
- h) To analyze the publication efficiency index

4. Data Collection

A total number of 28445 literature output on pollution control is downloaded from Scopus multidisciplinary online database from 2003 to 2014 for the Scientometric analysis.

5. Methodology

The downloaded data on Pollution Control from Scopus is segregated and tabulated through MS-Excel spreadsheet.

6. Limitation

The analysis of pollution control is limited for 12 years from 2003 to 2014 based on the data indexed in Scopus Database alone.

7. Analysis of the Study

7.1. Global Publication Output, Share and Rank

Table 1: Global Publications output, Share and rank of top 15 countries

| Sl. No. | Country | Publications Output | | | Publications Share | | | Publications Rank | | |
|---------------|----------------|---------------------|--------------|--------------|--------------------|------------|------------|-------------------|---------|---------|
| | | 2003-08 | 2009-14 | 2003-14 | 2003-08 | 2009-14 | 2003-14 | 2003-08 | 2009-14 | 2003-14 |
| 1 | United States | 3400 | 3046 | 6446 | 27.26 | 19.07 | 22.66 | 1 | 2 | 1 |
| 2 | China | 1210 | 4920 | 6130 | 9.7 | 30.8 | 21.55 | 2 | 1 | 2 |
| 3 | India | 630 | 921 | 1551 | 5.05 | 5.77 | 5.45 | 4 | 3 | 3 |
| 4 | United Kingdom | 799 | 751 | 1550 | 6.41 | 4.7 | 5.45 | 3 | 4 | 3 |
| 5 | Germany | 569 | 500 | 1069 | 4.56 | 3.13 | 3.76 | 5 | 8 | 5 |
| 6 | Canada | 535 | 544 | 1079 | 4.29 | 3.41 | 3.79 | 6 | 5 | 4 |
| 7 | Japan | 423 | 395 | 818 | 3.39 | 2.47 | 2.88 | 7 | 10 | 9 |
| 8 | Italy | 377 | 486 | 863 | 3.02 | 3.04 | 3.03 | 8 | 9 | 7 |
| 9 | France | 371 | 510 | 881 | 2.97 | 3.19 | 3.1 | 9 | 7 | 6 |
| 10 | Taiwan | 305 | 325 | 630 | 2.45 | 2.03 | 2.21 | 10 | 11 | 11 |
| 11 | Spain | 302 | 524 | 826 | 2.42 | 3.28 | 2.9 | 11 | 6 | 8 |
| 12 | Australia | 246 | 395 | 641 | 1.97 | 2.47 | 2.25 | 12 | 10 | 10 |
| 13 | Netherlands | 208 | 231 | 439 | 1.67 | 1.45 | 1.54 | 13 | 13 | 13 |
| 14 | South Korea | 196 | 322 | 518 | 1.57 | 2.02 | 1.82 | 14 | 12 | 12 |
| 15 | Sweden | 165 | 185 | 350 | 1.32 | 1.16 | 1.23 | 15 | 14 | 14 |
| 16 | Others | 2736 | 1918 | 4654 | 21.94 | 12.01 | 16.36 | | | |
| Global | | 12472 | 15973 | 28445 | 100 | 100 | 100 | | | |

Table 1 shows that out of the total number of publications on pollution control, India is ranked as 3rd among the top 15 most productive countries with a global publication share of 1551(5.45%) during the study period of 2003-2014. The top 15 most productive countries in the publication of pollution controls have shown the wide difference in their global publication share between 1.23% to 22.66%. The United States is placed on the top with the most number of publications share of 6446(27.26%), followed by China with 6130(21.55%) share, India with 1551(5.45%). The countries that were ranked 4th to 11th places are Canada, Germany, France, Italy, Spain, Japan, Australia, and Taiwan with the global publication share varying from 3.79% to 2.21%. South Korea is placed in 12th ranked leaving Netherland and Sweden in 13th and 14th rank, respectively.

7.2. Year Wise Global Growth of Publications and India

Table 2 shows that, the Globalwise growth of publications on pollution controls and the share of India. The publication position of global is highest in the year 2011 with a record count of 3795(13.34%), lowest in the year was 2003 with 1810(6.36%), and the average publication was 2370(8.33%). India shared with a record count of 1551 (5.45%), out of which the highest number of publication was in the year 2011. The records count of 182(11.73%) with an annual share of 4.8%, the lowest number of publication was in the year 2003 and 2005 with 90 (5.80%) research publications. The average publication share of India was 129.3(8.33%). The year 2011 was most prolific for the highest number of publications for both Global Wise 3795(13.34%) and India 182(11.73%).

Table 2: Year wise growth of publications in Global and Indian

| S. No. | Year | Global | | India | | Share% |
|----------------|------|--------------|---------------|-------------|---------------|-------------|
| | | Pub | % | Pub. | % | |
| 1 | 2003 | 1810 | 6.36 | 90 | 5.80 | 4.97 |
| 2 | 2004 | 2186 | 7.69 | 117 | 7.54 | 5.35 |
| 3 | 2005 | 2365 | 8.31 | 90 | 5.80 | 3.81 |
| 4 | 2006 | 2002 | 7.04 | 129 | 8.32 | 6.44 |
| 5 | 2007 | 2250 | 7.91 | 111 | 7.16 | 4.93 |
| 6 | 2008 | 1859 | 6.54 | 93 | 6.00 | 5.00 |
| 7 | 2009 | 2190 | 7.70 | 104 | 6.71 | 4.75 |
| 8 | 2010 | 2616 | 9.20 | 161 | 10.38 | 6.15 |
| 9 | 2011 | 3795 | 13.34 | 182 | 11.73 | 4.80 |
| 10 | 2012 | 2564 | 9.01 | 167 | 10.77 | 6.51 |
| 11 | 2013 | 2355 | 8.28 | 143 | 9.22 | 6.07 |
| 12 | 2014 | 2453 | 8.62 | 164 | 10.57 | 6.69 |
| Total | | 28445 | 100.00 | 1551 | 100.00 | 5.45 |
| Average | | 2370 | 8.33 | 129 | 8.32 | |

7.3. Indian Publication Output, Citation and International Collaborated Paper

Table 3 shows that India has published 1551 papers with 16565 citations in pollution control during 2003-2014. The annual growth incline from 90 papers with 889 citations in the year 2003 to 164 papers with 449 citations in the year 2014. The average publication per year was 129.3(8.33%) paper with 1380.4 citations. The cumulative growth of Indian publications output on pollution control increases from 630(40.62%) papers with 10427 citations during 2003-2008 to 921(59.38%) papers with 6138 citations during 2009-2014.

Table 3: Indian publications output, Citation and International Collaboration Paper

| Year | Publication | Citation | ACP | ICP (%) |
|------|-------------|----------|-------|------------|
| 2003 | 90 | 889 | 9.88 | 10 (11.11) |
| 2004 | 117 | 1900 | 16.24 | 12 (10.26) |
| 2005 | 90 | 1518 | 16.87 | 7 (7.78) |
| 2006 | 129 | 2467 | 19.12 | 11 (8.53) |
| 2007 | 111 | 2259 | 20.35 | 20 (18.02) |
| 2008 | 93 | 1394 | 14.99 | 35 (37.63) |
| 2009 | 104 | 1976 | 19.00 | 17 (16.35) |
| 2010 | 161 | 1172 | 7.28 | 28 (17.39) |
| 2011 | 182 | 1134 | 6.23 | 40 (21.98) |

| | | | | |
|---|-------------|--------------|--------------|-------------------|
| 2012 | 167 | 816 | 4.89 | 43 (25.75) |
| 2013 | 143 | 591 | 4.13 | 46 (32.17) |
| 2014 | 164 | 449 | 2.74 | 84 (52.22) |
| 2003-2008 | 630 | 10427 | 16.55 | 95 (15.08) |
| 2009-2014 | 921 | 6138 | 6.66 | 258 (28.01) |
| 2003-2014 | 1551 | 16565 | 10.68 | 353(22.76) |
| ACP = Average Citation per Paper, ICP=International Collaborative Paper | | | | |

The average Indian publication citation on pollution control research papers impact as reflected in 10.68 during 2003-2014, which decreased from 16.55 during 2003-2008 to 6.66 during 2009-2014.

The year wise publication share of Indian-International collaborative papers during 2003-2014 was 353(22.76%) papers, which increased from 95(15.08%) papers was published during 2003 to 2008 was to 258(28.01%) papers during 2009 to 2014. At an outset the maximum collaborated papers of Indian was in the year 2014 with a count of 84(52.22%) papers and lowest in the year 2005 with a count of 7(7.78%) papers.

7.4. Top 15 Collaborating Countries and the Share of India

Table 4: Contribution of India with top 15 collaborating countries

| Collaborating Country | India ICP | | | ICP Share % | | |
|-----------------------|-----------|------------|------------|---------------|---------------|---------------|
| | 2003-08 | 2009-14 | 2003-14 | 2003-08 | 2009-14 | 2003-14 |
| United States | 19 | 53 | 72 | 19.79 | 20.54 | 20.40 |
| United Kingdom | 7 | 21 | 28 | 7.29 | 8.14 | 7.93 |
| China | 3 | 20 | 23 | 3.13 | 7.75 | 6.52 |
| Japan | 5 | 16 | 21 | 5.21 | 6.20 | 5.95 |
| South Korea | 7 | 13 | 20 | 7.29 | 5.04 | 5.67 |
| Germany | 5 | 11 | 16 | 5.21 | 4.26 | 4.53 |
| Canada | 2 | 11 | 13 | 2.08 | 4.26 | 3.68 |
| Australia | 2 | 10 | 11 | 2.08 | 3.88 | 3.12 |
| Portugal | 1 | 9 | 10 | 1.04 | 3.49 | 2.83 |
| France | 5 | 4 | 9 | 5.21 | 1.55 | 2.55 |
| Italy | 4 | 4 | 8 | 4.17 | 1.55 | 2.27 |
| South Africa | 0 | 8 | 8 | 0.00 | 3.10 | 2.27 |
| Spain | 0 | 6 | 6 | 0.00 | 2.33 | 1.70 |
| Denmark | 0 | 6 | 6 | 0.00 | 2.33 | 1.70 |
| Netherlands | 3 | 3 | 6 | 3.13 | 1.16 | 1.70 |
| Other | 33 | 63 | 96 | 34.38 | 24.42 | 27.20 |
| Total | 96 | 258 | 353 | 100.00 | 100.00 | 100.00 |

Table 4 reflects that the contribution of India to other countries in collaboration towards publication. The share of India was 353(22.8%) number of publications with 55 Collaborating countries during the selected period of 2003 to 2014. The collaboration increased from 2003 and 2008 to 258(73.1%) between 2009 and 2014. During the period among India's top 15 collaborating countries and his shares are shown in Table 4. The United States has 72(20.40%) papers, followed by the United Kingdom 28(8.14%); China has 23(7.75%), etc. in the process of collaboration with India.

7.5. Top 15 Author's Contribution, Citation, and h-index

Table 5 shows that top 15 Indian authors contribution of 134 papers in Pollution control research publication out, citations and h-index. From this study a highest number of 17(12.69%) papers published Bandyopadhyay, A. and has 104 citations, h-index 5, followed by Biswas, M.N. 13(9.70%) papers 262 citations and h-index 7, Ravindranath K., has 12(8.96%) papers, 266 citations and h-index -8 and Meikap, B.C. has 12(8.96%) papers 5 citations and h-index 1.

Table 5: Contribution of top 15 authors, citation, and h-index in pollution control

| S. No. | Author | Publications | % | Citations | h-index |
|--------------|-------------------|--------------|---------------|-----------|---------|
| 1 | Bandyopadhyay, A. | 17 | 12.69 | 104 | 5 |
| 2 | Biswas, M.N. | 13 | 9.70 | 262 | 7 |
| 3 | Rabindranath, K. | 12 | 8.96 | 266 | 8 |
| 4 | Meikap, B.C. | 12 | 8.96 | 5 | 1 |
| 5 | Khare, M. | 11 | 8.21 | 5 | 1 |
| 6 | Devotta, S. | 9 | 6.72 | 118 | 4 |
| 7 | Abbasi, S.A. | 7 | 5.22 | 146 | 6 |
| 8 | Singh, N. | 7 | 5.22 | 237 | 6 |
| 9 | Prasad, M.N.V. | 7 | 5.22 | 465 | 6 |
| 10 | Ghose, M.K. | 7 | 5.22 | 146 | 5 |
| 11 | Philip, L. | 7 | 5.22 | 121 | 6 |
| 12 | Mujumdar, P.P. | 7 | 5.22 | 208 | 7 |
| 13 | Freitas, H. | 6 | 4.48 | 463 | 6 |
| 14 | Gautam, S.P. | 6 | 4.48 | 3 | 1 |
| 15 | Taneja, A. | 6 | 4.48 | 66 | 3 |
| Total | | 134 | 100.00 | | |

7.6. Type of Documents

Table 6: Type of documents in blocks

| S. No. | Document Type | 2003-08 | 2009-14 | 2003-14 | 2003-14 % |
|--------|------------------|------------|------------|-------------|---------------|
| 1 | Article | 534 | 673 | 1206 | 77.76 |
| 2 | Conference Paper | 56 | 162 | 218 | 14.06 |
| 3 | Review | 32 | 63 | 95 | 6.13 |
| 4 | Editorial | 3 | 10 | 13 | 0.84 |
| 5 | Book Chapter | 0 | 9 | 9 | 0.58 |
| 6 | Letter | 2 | 3 | 5 | 0.32 |
| 7 | Short Survey | 2 | 0 | 2 | 0.13 |
| 8 | Erratum | 1 | 0 | 1 | 0.06 |
| 9 | Article in Press | 0 | 0 | 1 | 0.06 |
| 10 | Note | 0 | 1 | 1 | 0.06 |
| | Total | 630 | 921 | 1551 | 100.00 |

Table 6 very clear to state that the block year wise different type of bibliographic form involved towards the research publications on Indian pollution control Research output. During 2003-2014, a maximum number of 1206(77.76%) papers are contributed in the article. Followed by conference paper was 218(14.06%) in the second place and Review with 95(6.13%) papers in the third place and leaving Editorial, Book Chapter, Letter and Short survey with less number of publications as cited below.

7.7. Relative Research Effort

The relative research effort was being measured by the Publication Efficiency Index (PEI), and it is based on the references appended to the research articles by the authors. PEI is calculated by the formula used by Guan, J., & Ma, M. (2007).[17]

$$PEI = \frac{TNC_i/TNC_t}{TNP_i/TNP_t}$$

Where,

TNC_i = total number of references in a year,

TNC_t = total number of references for all the years

TNP_i = total number of papers in a year,

TNP_t = total number of papers for all the years

If the value of PEI is greater than 1 for a country, it indicates that the impact of publications is more, and the research effort is highly devoted to that particular country. Table 7 describes the year-wise

Table 7: Publication Efficiency Index

| Year | Publications | Reference | ARPP | PEI |
|-------------------|--------------|--------------|--------------|--------------------|
| 2003 | 90 | 1527 | 16.97 | 0.68 |
| 2004 | 117 | 2366 | 20.22 | 0.81 |
| 2005 | 90 | 2059 | 22.88 | 0.91 |
| 2006 | 129 | 2947 | 22.84 | 0.91 |
| 2007 | 111 | 2584 | 23.28 | 0.93 |
| 2008 | 93 | 2161 | 23.24 | 0.93 |
| 2009 | 104 | 3454 | 33.21 | 1.33 |
| 2010 | 161 | 3698 | 22.97 | 0.92 |
| 2011 | 182 | 5057 | 27.79 | 1.11 |
| 2012 | 167 | 5637 | 33.75 | 1.35 |
| 2013 | 143 | 4548 | 31.80 | 1.27 |
| 2014 | 164 | 6389 | 38.96 | 1.56 |
| 2003 -2008 | 630 | 13644 | 21.66 | 0.87 |
| 2009 -2014 | 921 | 28783 | 31.25 | 1.25 |
| 2003 -2014 | 1551 | 42427 | 27.35 | Avg. = 1.06 |

Publication Efficiency Index (PEI). PEI has been calculated from of 2003-2014 at 1551 publications. The years 2009, 2011-2014 shows a higher impact of publications comparatively to the other years. Further, it is found that the average reference per paper is 27.35.

7.8. Top 15 Indian Institution Contributions, Citation, and h-index*Table 8: Top 15 Indian Institutions contribution, citation, and h-index*

| S. No. | Name of Indian Institution | TP | TC | ACP | h-index |
|---|---|--------------|------|-------|---------|
| 1 | National Environmental Engg. Research Institute India | 76 | 1063 | 13.99 | 18 |
| 2 | Indian Institute of Technology Delhi | 63 | 811 | 12.87 | 17 |
| 3 | Indian Institute of Technology Roorkee | 40 | 1098 | 27.45 | 12 |
| 4 | Indian Institute of Technology, Kharagpur | 37 | 617 | 16.68 | 13 |
| 5 | Banaras Hindu University | 24 | 382 | 15.92 | 13 |
| 6 | Anna University | 24 | 244 | 10.17 | 6 |
| 7 | The Energy and Resources Institute India | 23 | 183 | 7.96 | 7 |
| 8 | Indian Institute of Technology, Madras | 23 | 310 | 13.48 | 8 |
| 9 | Indian Institute of Science | 21 | 369 | 17.57 | 11 |
| 10 | Indian Institute of Technology, Kanpur | 21 | 370 | 17.62 | 11 |
| 11 | Jadavpur University | 19 | 118 | 6.21 | 6 |
| 12 | Central Leather Research Institute India | 19 | 289 | 15.21 | 9 |
| 13 | Indian Institute of Technology, Guwahati | 18 | 219 | 12.17 | 7 |
| 14 | Aligarh Muslim University | 18 | 192 | 10.67 | 7 |
| 15 | Central Pollution Control Board India | 18 | 135 | 7.50 | 4 |
| Total | | 444 | | | |
| Indian Pollution Control Output | | 1551 | | | |
| Share of top 15 Indian Institutions Pollution Control output | | 28.63 | | | |

Table 8 shows the top 15 Indian Institution contributions, citation, average citation per paper and h-index. During the period, a total number of 1551 publications contributed by 160 institutions. Out of that, the top 15 institutions contributed 444 (28.61%) number of publications. The National Environmental Engineering Research Institute leads the table with 76 number of publications; 1063 citations with an average citation per paper of 13.99 and have the credit of having more h-index of 18. The Indian Institute of Technology, Delhi placed in the second place with 63 publications; 811 citations with an average citation per paper of 12.87 and the h-index was 17. The Indian Institute of Technology, Roorkee credited with the third place with 40 publications; with maximum no. of citations of 1098 at 27.45 as average citation per paper and an h-index of 12. The status of other twelve institutions is cited in the table according to the chronological order of the number of publications.

8. Findings and Conclusion

Through the Scientometric analysis, it is found that India was placed in the third rank towards publishing more number of publications with a publication share of 1551 out of the total number of publications of 28445 research papers during the study period of 2003 to 2014. United States is top the table leaving China in the second place with 6446 (22.66%) and 6130 (21.55%), respectively. The year wise publication share on Indian-International collaborated papers during 2003-2014 was 353(22.76%) papers. A maximum number of 1206(77.76%) papers are contributed in the form of Journal article. The years 2009, 2011-2014 shows the higher impact of publications of India comparatively to the other years.

Further, it is found that the average reference per paper is 27.35. 160 research institutions of India involved in publishing 1551 research publications on Pollution Control. It is highly appreciable that The National Environmental Engineering Research Institute published 76 research papers, which was considered as the most number of publications on pollution control in India which also gains maximum h-index of 18. Being the pollution is increased day by day using various aspects and innovation, it is essential to control the pollution to developing a healthy society. Therefore, all the funding agencies are requested to allocate more funds to do much more research on Pollution Control for the betterment of the society.

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