

Information Literacy Skills and Research Productivity of Academic Librarians in Universities in Nigeria: A Review of Literature

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Abstract

This study examined the relationship between information literacy skills and the research productivity of academic librarians and underscores the academic librarian's level of information literacy as an enabler for high-level research productivity. It is observed that the level of research productivity emanating from Nigerian universities seems to be low. Academics, librarians, researchers and students need to acquire information literacy skills for better research productivity. The review found that in achieving high-level research productivity, information literacy skill is the key. The study made recommendations to librarians, academics, library management, parent institutions, policymakers, government and all related agencies on how to improve research productivity in order to achieve the desired impact on national development. The paper proposes ways in which the quality and quantity of research productivity can be improved. The paper also proposes future research into other factors that are deemed necessary for enhanced research productivity.

Keywords: Information literacy skill; Universities; Academic librarian; Research; Research productivity; Nigeria.

Introduction

Research is very essential in the development of any nation and must be seen as such if there will be remarkable progress in the advancement of knowledge and economic and infrastructural growth. Research must be conducted regularly by any nation that aspires to greatness (Gabbay, Klain & Soham, 2019). Conducting research is one of the ways for scholars to sharpen their minds and keep abreast of developments in their field of interest and become renowned in their chosen profession, therefore conducting research is also beneficial to the researcher hence research publication in the university stands out as a major significant signal of academic librarian productivity. The volume and quality of a scholar's research output are highly important to career advancement and have given rise to the slogan "publish or perish" among scholars and have also become a cliché. Universities are globally seen as the leading sector in research and inventions, they are also recognized as the centre of production of knowledge, and this knowledge can be measured by the research productivity of the universities. In carrying out research, as tasking as it may appear, can still not be underrated in the university, therefore the quantity and quality of research can be used as the standard in rating the success and prestige of a university and in measuring the career trajectory of academics including librarians. All over the world universities are mandated to perform three major functions which are: teaching, research, and community service and this is to produce the trained manpower for the various areas of national development. The importance of research can be better understood from the fact that universities around the world are ranked based on the quality and quantity of research output (Williams, 2013), this is obvious because conducting research is a better means of expanding the frontiers of knowledge and drive development in a bid to make the world a better place (Gabbay, Klain and Soham, 2019).

Research publication has helped to fill the gaps in previous research and has encouraged hard work among academics and has also created an avenue for future investigations. Innovative and high-impact research has improved the profile of the researcher among their peers and expedited their career progression (Okoduwa, Abe, Samuel, Chris, Oladimeji, Idowu, 2018; Gabbay, Klainand Soham, 2019). Research productivity is defined as the number of publications per researcher, distinguishing it from impact (Paez and Arsenio, 2017). Research exposes academic librarians to new and current information and they can share socio-cultural ideas with others. In the process of engaging in research, academic librarians are presented with the opportunity of travelling outside their environment and this allows them to learn new things, and see new things, which also increases their curiosity to seek more information and gather more data. Most of the research work in Nigeria occurs in universities, and indeed research productivity has become essential for the university's success, and the prospect of promotion of academics (Aniedi and Effiom, 2011). Librarians of this age are also at the forefront of this struggle hence the need to measure their research productivity becomes pertinent. Librarians' research productivity output is revealed through publication outlets such as textbooks, chapters in a book, conference proceedings, articles in learned journals, writing monographs, occasional papers, and technical reports, among others. (Igbal and Mahmood, 2011). The research productivity of academic librarians in Nigeria like their teaching counterparts has become an essential parameter for accessing promotion, appointments, career advancement, and upgrading, among others. Hence the importance of research productivity cannot be over-emphasised in the prosperity, development, enhancement and contribution of knowledge in a nation (Aniedi and Effiom, 2011).

Various publication outlets earlier mentioned have projected and influenced academic librarians' research productivity. For instance, Textbook publication has become a way of communicating research by authors for knowledge transfer to a specific audience through teaching and learning. In addition, textbooks contain a comprehensive compilation of content in a branch of study to explain it. Chapter in a book is another outlet that has promoted the research productivity of academic librarians. It appears in a section or division of a book and it is usually separated by a chapter number or chapter title. The concept of a book chapter is to allow the author to break up the work, and for the reader to digest the material in increments, or chunks that are both understandable and memorable.

In academia and librarianship, a conference proceeding serves as a collection of academic papers published in the context of an academic conference or workshop; conference proceedings typically contain the contributions made by researchers at the conference. They are the written record of the work that is presented to fellow researchers. In many fields, they are published as supplements to academic journals, in some, they are considered the main dissemination route; in others, they may be considered grey literature. They are usually distributed in printed or electronic volumes, either before the conference opens, during the conference, or after the conference has closed (Casper and Scott, 2014).

Academic librarians' research productivity is revealed in the number of publications in Journals articles which has to do with collections of written compositions on a topic of interest. A journal is a collection of articles that is published regularly throughout the year. Journals present the most recent research and are written by experts, they may be published in print or online formats, or both. An academic journal or scholarly journal is a periodical publication in which articles relating to a particular academic discipline is published (Kolata and Gina, 2013). Academic journals are usually peer-reviewed or refereed and serve as permanent and transparent forums for the presentation, scrutiny, and discussion of research. Articles in learned journals are usually primary sources; that is, the authors are reporting directly on research or experiments they have conducted, and not reporting it second-hand. The rate at which academic librarians publish articles in learned journals is a reflection of how productive the

librarian is in research. A monograph is another outlet for the research productivity of academic librarians. The focus is placed on a single subject, usually on a scholarly subject by an author and that is why it is also called a specialist type of writing, (Kolata and Gina, 2013). A monograph is just one of the many scholarly articles that are used by many professionals and people who want to further their knowledge about specific topics. In academics, a monograph is used to present primary research, which you can find in different research monograph samples. Monographs are generally published as individual volumes in a short print run. Occasional papers include a discussion of new research methodologies, essays, a paper presented at a conference, a summary of work in progress, or an informed perspective on a timely policy issue. Occasional papers undergo rigorous peer review to help ensure that they meet high standards for research quality and objectivity, (Robert and Barbara, 2011). Academic librarians may publish occasional papers on policy issues, a summary of work in progress, and many others. A technical report (also a scientific report) is a document that describes the process, progress, or results of technical or scientific research or the state of a technical or scientific research problem. It might also include recommendations and conclusions of the research.

Academic librarians in Nigerian universities have strived to take the lead in demonstrating academic excellence both in local and international journals and other publications which have gone to a great extent in revealing their level of research productivity (Okafor, 2011). Hence research productivity is expected to be influenced by the level of information literacy skills of academic librarians among colleagues and contemporaries. The degree of information literacy skills of librarians in identifying an information need, searching for such information, putting the information obtained to judicious use and sharing the eventual knowledge garnered with others will go a long way to showcase the quality and quantity of their research output. Information literacy skills of academic librarians are the ability of an academic librarian to identify a need for information, know how to search for the information, sieve the most useful information from loads of information, communicate and utilize the information for research activities (Aniedi & Effiom, 2011). Aina, (2004) observed that information literacy is the ability to make efficient and effective use of information sources, and every information-literate person should possess specific online searching skills which include; the ability to recognize the information needed, skills to search information online, skills to evaluate information appropriately, skills to make use of information resources, skills to construct a logical search strategy, skills to incorporate information into one's knowledge base, saving and e-resource editing skills, information use skills, communication skills, information dissemination skills and so on.

The knowledge of the information is the first step in information literacy skills. Information is seen as the summarization of data, while technically, data are raw facts and figures that are processed into information, such as summaries and totals. But since information can also be the raw data for the next job or person, the two terms cannot be precisely defined, and both are used interchangeably. It may be helpful to view information the way it is structured and used.

Information is data that is accurate and timely, specific and organized for a purpose, presented within a context that gives it meaning and relevance, and can lead to an increase in understanding and a decrease in uncertainty, (Ekere, Ugwu, & Ekere, 2014). Another way to look at information is, as data that has been interpreted and presented in a more meaningful context that businesses can make decisions. Information is data that has been given meaning by way of relational connection. Information is data that has been processed and organized for human consumption. Information resources can be obtained from libraries and information centres (Ozioko, & Ekere, 2011). An academic librarian can be said to possess the requisite information literacy skills with the ability to define information needs and then access, evaluate, process and use the retrieved information strategically, (Aniedi & Effiom, 2011). Information literacy skills include information searching strategies which are ways of using search

terms in finding required information from search tools, such as search engines like Google, the library catalogue and online databases. To achieve good search results, it is necessary to use search strategies that apply to various search tools, such as Boolean Logic, parenthesis, phrase searching, truncation, wildcards, and field searching. Secondly, information literacy skills locate information using access tools which aid in identifying what a library has in stock for use (Ezekwe & Muokebe, 2012).

Being able to find relevant and appropriate information is a skill required as a preliminary to all decision making whether in academic work, career management, or the home, the ability to select and justify the appropriate search techniques to carry out independent research and or critically evaluate search results for research productivity (Nwachukwu, 2019). Hence academic librarians should possess this skill to be productive in research publications.

There are also issues about what volume of information to be consulted. The more information and other materials that a researcher can access will influence to a large extent the level of research productivity. Therefore, communication skill is another important information literacy skill; for without good communication skills all the other information literacy skills cannot be put to effective use in adding value to the research productivity of academic librarians in Nigerian universities.

Research productivity emanating from universities is of great importance in the advancement of knowledge and -self-development, so much so that its absence may spell doom to an individual career. It is therefore expected that academic librarians should conduct research and publish their findings in reputable outlets such as journals, textbooks, and conference proceedings, among others. It is also assumed that if academic librarians are well equipped with information literacy skills such as locating information using information access skills, acquiring communication skills, information retrieval skills, and so on, they will be able to advance in research productivity. But the researcher perceived that the research productivity of academic librarians in selected universities in Nigeria seems to be low; this assumption is also corroborated by Saric, Utzinger, and Bonfoh (2018), Yusuf (2012), who observed that both the quality and quantity of research productivity from universities in Nigeria and most African countries are generally too low to make the desired impact on national development.

Methodology

Related literature was reviewed in the form of content analysis, the review explored the variables in context; information and research productivity through subheadings like the concept of information literacy skills, the concept of research productivity, and information literacy skills versus research productivity. The review included both electronic and print resources subscribed from different multidisciplinary and discipline-specific sources based on the following keywords: Information literacy skill; universities; academic librarian; research; research productivity. This study is meant to serve as a background for further studies to explore the concept of information literacy skills concerning the level of research productivity of academic librarians in Nigerian universities.

Concept of Information literacy skills

Literacy traditionally refers to the ability to read and write, these skills are also developed over time, but in an actual sense, it goes beyond just knowing how to read and write but understanding what is being written and communicating what you have written or read. There are many types of literacy numerical literacy, digital literacy, health literacy, financial literacy, media literacy; cultural literacy. Rebmann (2013) noted that there are similarities and differences between multiliteracies. He stated that they are similar because they are both rooted in the critical and social practice of literacy; he emphasized contexts such as power, economics, and technology. He also claims that the approaches are different because multiliteracies emphasise a multiplicity of discourses, he also emphasized the emergence of various movements in literacy as it has redefined the concept of information literacy

which is composed of two components: information and literacy, he posited that any changes of understanding of each component will change the whole concept. All types of literacy are dependent on information literacy which is the ability to identify or recognize information needs, how to search for the needed information, the ability to use information search tools to search for the needed information, information retrieval skills, the ability to sieve the needed information from loads of unsolicited information and the ability to communicate and utilize this information.

Hence the various types of literacy are audiovisual literacy, print literacy, computer literacy, media literacy, web literacy, technical literacy, functional literacy, library literacy, etc. Nominal and active literacy too focuses on equipping people with the skill to read and write for their day-to-day activities. (Karimi, Ashrafi-Rizi, Papi & Shahrzadi, 2015). Information literacy is quite different from the above. It is a combination of all these concepts but goes beyond them. According to the Association of College and Research Libraries, information literacy is the ability to "recognize when information is needed and can locate, evaluate, and use effectively the needed information" (ACRL, 2000). Also, the American Library Association defined information literacy "as a set of abilities requiring individuals to recognize when information is needed and can locate, evaluate, and use effectively the needed information" (ALA 2018). CILIP Information Literacy Group also defines Information literacy as "the ability to think critically and make a balanced judgment about any information that is found and used. It empowers citizens to reach and express informed views and to engage fully with society" (CILIP Information Literacy Group 2018).

Information Literacy skills are needed in finding, retrieving, analyzing, and using information. Being tagged as the information era, the twenty-first century has experienced an explosion of information and information sources. The study target cannot be achieved without practising special information literacy skills; hence, information literacy skills empower people with critical skills which will help them to become independent lifelong learners. Being able to apply knowledge from the familiar environment to the unfamiliar is achievable through information literacy skills. Due to the information explosion, it has become increasingly clear that librarians cannot learn everything they need to know in their field of study, within a few years, at school or the university. Information literacy skills equip them with the critical skills necessary to become independent learners; improve on what has been learned and search for more. There is a need for information literacy and it is important to know.

According to Raja Kamaruzaman (2011), information literacy skills allow problem-solving, critical and creative thinking, decision making, and cooperative learning. Akinyoulu and Umar (2006) submitted that success is not only based on the possession of necessary skills, it also requires the confidence to use these skills effectively. Lloyd (2012) also defined information literacy as an interaction between an individual and the text he or she reads rather than a social practice. Therefore possessing certain information literacy skills is not sufficient but confidence should also be developed in the skills acquired. Hence, confidence and the feeling of being competent in the use of information literacy skills are more important. In other words, information literacy skill is very important in the attainment of a high level of efficiency in all profession.

The Alexandria Proclamation of 2005 defined the term as a human rights issue: "Information literacy empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals. It is a basic human right in a digital world and promotes social inclusion in all nations. National Forum on Information Literacy (Weiner, Sharon, Jackman, and Lana, 2010) defined information literacy as "the ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand". Literacy is fundamental to national development, and this explains why nations buy

into global literacy development agendas to eliminate illiteracy which often affects social development. African nations are fully aware that the consequences of illiteracy are detrimental to the achievement of national goals. However, it has become crucial for African nations to also appreciate that basic literacy skills may not be sufficient for achieving personal or national goals, (Nkechi, 2010). In today's world, individuals need to be adequately and functionally literate to be fully capable of living healthily, enjoying long life, participating in social interactions in communities, taking good care of a family, acquiring knowledge and expressing one's thoughts. In the information driven and digital world, the ability to read and write is no longer considered an adequate definition of literacy. Thus, the gross literacy rate is inadequate for judging the literacy development of countries. Instead, book output and publication statistics, in terms of the number of titles and volume of copies produced might give a better picture of how much a society is involved in reading and writing, which reflects the level of literacy and knowledge advancement in the digital literacy age (Nkechi, 2010).

2. Concept of Research Productivity

Research is a creative and systematic work undertaken to increase the stock of knowledge, (Ioannidis, Fanelli, Dunne, and Goodman, 2015). It involves the collection, organization and analysis of information to increase understanding of a topic or issue. Research is the systematic investigation and study of materials and sources to establish facts and reach new conclusions, (Creswell, 2014). Research may be an expansion on past work in the field, to test the validity of instruments, procedures, or experiments, and research may replicate elements of prior projects or the project as a whole. There are many forms of research such as Primary or original research, scientific research, artistic research and so on. Primary research also called original research is research that is not exclusively based on a summary, review, or synthesis of earlier publications. The purpose of the original research is to produce new knowledge, rather than to present the existing knowledge in a new form. Original research can be in various forms, depending on the discipline it pertains to (Zeng, Fan, Di, Wang, & Havlin 2021). Experimental work, typically involves direct or indirect observation of the researched subject which may be in the laboratory or the field. It documents the methodology, results, and conclusions of an experiment or set of experiments, or sometimes offers a novel interpretation of previous results. In analytical work, there are typically some new mathematical results produced or a new way of approaching an existing problem. In some subjects, experimentation or analysis of this kind is not been carried out but the originality is in the way by which existing knowledge is changed or interpreted based on the outcome of the work of the researcher. The degree of originality of the research is among the major criteria for articles to be published in academic journals and is usually established by employing peer review (Israel, 2016). Graduate students are commonly required to perform original research as part of a dissertation.

Scientific research is a systematic way of gathering data and harnessing curiosity. This research provides scientific information and theories for the explanation of nature and the properties of the world. It makes practical applications possible. Scientific research is funded by public authorities, charitable organizations and private groups, including many companies. Scientific research can be subdivided into different classifications according to their academic and application disciplines. Scientific research is a widely used criterion for judging the standing of an academic institution, but some argue that such is an inaccurate assessment of the institution because the quality of research does not tell about the quality of teaching (Eyler, 2020). Artistic research are also seen as practice-based research is creative work and is considered research or an object of research. It is the debatable body of thought which offers an alternative to purely scientific methods in research and its search for knowledge and truth. The controversial trend of artistic teaching becoming more academic-oriented is leading to artistic research being accepted as the primary mode of inquiry in art as in the case of other disciplines.

There are also historical methods which comprise the techniques and guidelines by which historians use historical sources and other evidence to research and then write history. Various history guidelines are commonly used by historians in their work, under the headings of external criticism, internal criticism, and synthesis, though items may vary depending on the subject matter and researcher, (Zeng, Fan, Di, Wang, & Havlin 2021). This includes lower criticism and sensual criticism. There are various steps in conducting research.

Steps in Conducting Research

Research is often conducted using the hourglass model structure of research, (Shields and Rangarjan, 2013). The hourglass model starts with a broad spectrum for research, focusing on the required information through the method of the project just like the neck of the hourglass, then expands the research in the form of discussion and results. The major steps in conducting research are the identification of the research problem, literature review, specifying the purpose of research, determining specific research questions, specification of a conceptual framework, sometimes including a set of hypotheses, choice of a methodology (for data collection), data collection, verifying data, analyzing and interpreting the data, reporting and evaluating research, communicating the research findings and, possibly, recommendations. The steps generally represent the overall process; however, they should be viewed as an ever-changing iterative process rather than a fixed set of steps, (Stahl, Timmermans, & Flick, 2017). Most research begins with a general statement of the problem, or rather, the purpose for engaging in the study. The literature review identifies flaws or holes in previous research which justifies the study. Often, a literature review is conducted in a given subject area before a research question is identified. A gap in the current literature, as identified by a researcher, then engenders a research question. The research question may be parallel to the hypothesis. The hypothesis is the supposition to be tested. The researcher collects data to test the hypothesis. The researcher then analyzes and interprets the data through a variety of statistical methods, engaging in what is known as empirical research. The results of the data analysis in rejecting or failing to reject the null hypothesis are then reported and evaluated. In the end, the researcher may discuss avenues for further research.

However, some researchers advocate for the reverse approach, starting with articulating findings and discussion before moving up to the identification of a research problem that emerges in the findings and literature review. The reverse approach is justified by the transactional nature of the research endeavour where research inquiry, research questions, research method, relevant research literature, and so on are not fully known until the findings have fully emerged and been interpreted. According to Rudolph Rummel, he states that no researcher should accept any one or two tests as definitive. It is only when a range of tests are consistent over many kinds of data, researchers, and methods, then one can have confidence in the results (Gleditsch, 2017). Furthermore, there are many research methods, although, the goal of the research process is to produce new knowledge or deepen understanding of a topic or issue. This process takes three main forms, though the boundaries between them may be obscure, (Shields and Rangarjan, 2013). The three main forms are exploratory, constructive and empirical research. Exploratory research helps to identify and define a problem or question, also constructive research tests theories and proposes solutions to a problem or question, and empirical research tests the feasibility of a solution using empirical evidence. There are also two major types of empirical research design which are qualitative research and quantitative research. Researchers choose qualitative or quantitative methods according to the nature of the research topic they want to investigate and the research questions they aim to answer. Qualitative research involves understanding human behaviour and the reasons that govern such behaviour, by asking a broad question, collecting data in the form of words, images, and audiovisual and then analysed. This type of research aims to investigate a question without attempting to quantifiably measure variables or look at potential relationships between

variables. It is viewed as more restrictive in testing hypotheses because it can be expensive and time-consuming and typically limited to a single set of research subjects (Creswell, 2014).

Quantitative research involves a systematic empirical investigation of quantitative properties and phenomena and their relationships, by asking a narrow question and collecting numerical data to analyze it utilizing statistical methods. The quantitative research designs are experimental, correlation, and survey or descriptive (Creswell, 2014). Statistics derived from quantitative research can be used to establish the existence of associative or causal relationships between variables. Quantitative research is linked with the philosophical and theoretical stance of positivism (Roffee, and Waling, 2016). The quantitative data collection methods rely on random sampling and structured data collection instruments that fit diverse experiences into predetermined response categories (Snelson, 2016). These methods produce results that can be summarized, compared, and generalized to larger populations if the data are collected using proper sampling and data collection strategies. Quantitative research is concerned with testing hypotheses derived from theory or being able to estimate the size of a phenomenon of interest. If the research question is about people, participants may be randomly assigned to different treatments; this is the only way that a quantitative study can be considered a true experiment, (Roffee & Waling, 2016).

Mixed-method research is the research that includes qualitative and quantitative elements, using both primary and secondary data, and it is becoming more common. This method has benefits that using one method alone cannot offer. For example, a researcher may choose to conduct a qualitative study and follow it up with a quantitative study to gain additional insights, (Snelson, 2016).

Oftentimes, engaging in research is for productivity. The concept of productivity is quite ambiguous and can only be defined in context. It can generally be interpreted as the effectiveness of activities performed or the state of being effective to perform a task. In the production industry, the rate of output per unit of input defines productivity (Sickles and Zelenyuk 2019), but in scientific endeavours, often this term is used to mean 'the capacity of rendering efforts to produce publications'. Instead of the input/output ratio, productivity is the quintessential indicator of efficiency in any production system. It seems it has become a norm in bibliometrics to define research productivity as the number of publications per researcher, distinguishing it from impact. In the manufacturing industry, productivity is the efficiency of the production of goods or services expressed by some measure. Measurements of productivity are often expressed as a ratio of aggregate output to a single input or an aggregate input used in a production process such as output per unit of input, typically over a specific period (Pratap, 2014). The most common example is the (aggregate) labour productivity measure, such as GDP per worker. There are many different definitions of productivity, including those that are not defined as ratios of output to input and the choice among them depends on the purpose of the productivity measurement and/or data availability. The key source of difference between various productivity measures is also usually related, directly or indirectly to how the outputs and the inputs are aggregated into scalars to obtain such a ratio-type measure of productivity (Sickles and Zelenyuk 2019). Types of production are mass production and batch production.

Productivity growth can also help businesses to be more profitable while research productivity can enhance academic, economic and societal growth. Pal and Sarka, (2020) defined research productivity as something about a trait (quality) of accomplishing objectives (effective) promptly (efficiency). Three parenthesized components "would seem to be essential for assessing productivity, where 'quality' has an intuitive appeal that the institutions cannot ignore". Pratap, (2014) viewed research productivity by employing the concept of 'quality' that combines quality, quantity, and consistency. Since the research is a process of knowledge generation; it utilizes intangible input (human intellect) to produce a tangible

output (publication). Primarily, it requires accumulated knowledge, social networks, cognition, motivation, and thought processes alongside a few tangible inputs like learning resources, laboratory types of equipment, dataset, salary, incentives and so on. In addition to publications (tangible), some intangible outputs like tacit knowledge, new perception/insight, guidance, recognition, and social welfare are also generated. Thus, several factors in varying degrees co-exist to enable research productivity which is mostly evaluated by some terms of measurement (Pratap, 2014), one of which is the h-index, (Yong, 2014).

The h-index is an author-level metric that measures both the productivity and citation impact of the publications, initially used for an individual scientist or scholar. The h-index correlates with obvious success indicators such as winning the Nobel Prize, being accepted for research fellowships and holding positions at top universities, (Abramo and D'Angelo, 2014). The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other publications. The index has more recently been applied to the productivity and impact of a scholarly journal (Hovden, 2013), as well as a group of scientists, such as a department or university, or country. The index was suggested in 2005 by Jorge E. Hirsch, a physicist at UC San Diego, as a tool for determining theoretical physicists' relative quality and is sometimes called the Hirsch index or Hirsch number, (Yong, 2014).

Information literacy skills versus research productivity

University libraries also referred to as Academic Libraries, are established with the primary goal of providing information to students, researchers, staff and workers of the university community, one of the objectives of university libraries in Nigeria is to develop and maintain the collection of information resources in all formats: prints and non-prints and to make this information available and accessible to all. The main essence of having libraries in universities is to provide effective information services that would enhance teaching, learning and research within the university community (Aina, 2004; Mabawonku, 2004; Johnson, 2006). It is pertinent therefore that, universities' libraries facilitate information resources to meet academic staff members' research needs in supporting the objective of the university (ALA, 2010). The research information network (2011) pointed out that universities invest substantially in electronic information resources because they can be quickly and easily accessed by academics for research purposes, with the mindset that improved access to electronic resources will increase research productivity. The level of information literacy skills of academic librarians determines to a great extent the level of research productivity. Research productivity is the extent to which academics engage in their research and publish articles in referred journals, conference proceedings, write a book or a chapter, gather and analyse, original evidence, work with postgraduate students on dissertation and class projects, obtain research grants, carrying out editorial duties, obtaining patent licenses, writing monographs, developing experimental designs, producing works of an artistic or creative nature, engaging in public debates and commentaries (Okiki, 2019).

A lot has been done over the years to increase emphasis on the quality and quantity of research, the national research assessments, international league tables and changing patterns of government research funding have propelled universities, towards charging their academics to be research-active, which are also being accompanied by an upsurge of studies examining various aspects of the nature of research. So many trends have been derived, among which are growth in emphasis on a broader view of research as more than just publication, looking at the contribution of undergraduates to research, the researcher's role, researcher identification, research management and research collaboration. Another is the development of distinct and hitherto separate literature considering what research is understood to be (Brew, Boud, Namgung, Lucas, & Crawford, 2015). It has also been discovered that the factors that facilitate research productivity have increased across academic disciplines and countries, and there have

also been advocacies on how research activities can be enhanced and developed (Grapin, Kranzler, & Daley, 2013). The doctoral students have also contributed immensely to research productivity (Kyvik 2013; Boud & Lee 2009). Factors that contribute to researchers' productivity have been examined in so many studies, a lot of factors have been suggested, and some of these factors have led to an increased number of variables and complexity in statistical analysis. Some of the listed factors include demographic variables including gender, family size and age of children, self-efficacy, academic capabilities and confidence, institutional features (type and size of the institution, departmental climate, funding, laboratory size, time spent), choice of topic, level and type of communication and supervision, and other various aspects such as culture, finance, social aspects such as workload and so on (Quimbo & Sulabo 2014; Kim, Wolf-Wendel, & Twombly, 2011; Edgar & Geare 2013).

According to Kpolovie and Onoshagbegbe (2017), the number of publications has often been used by administrations in institutions to judge academic research productivity. Research productivity in Nigerian universities cannot be studied in isolation. One of the strategies for determining research productivity is to access the quantity of the publication which researchers communicated through primary or other sources. Research productivity among academic librarians has become a major concern. The research productivity of an academic librarian is measured by the performance index in the current context not only by the quantity but also by the quality of research output in terms of publications, consultation and industry engagement (Basse, Owan, and Eze, 2019). Academic staff members conduct research and their productivity is measured in various ways. Academic institutions primarily measure research productivity based on published works, externally funded grants, and the number of citations the published works received (Middaugh, 2001).

Numerous articles describe the level, context, and environment in which librarians conduct their research and scholarship (Harrington & Gerolami, 2014; Pickton, 2016; Shaw and Szwajcer, 2016). Much of the research to date has focused on institutional context. Authors of most of these articles often address the challenges that librarians face when conducting research and the barriers that may prevent them from being productive researchers. Commonly noted challenges and barriers include the level of their information literacy skills, time constraints, lack of support, and lack of research training or experience (Kennedy & Brancolini, 2012; Lessick, Perryman, Billman, Alpi, De Groote, & Babin, 2016; O'Brien and Cronin, 2016; Shaw and Szwajcer, 2016; Spring, Doherty, Boyes, and Wilshaw, 2014). A scholar's achievement is measured by the research productivity, the number of research publications in peer-reviewed journals, and scholastic presentations in conferences and other gatherings of peers are important criteria for assessing productivity and prestige in academia (Okiki, 2019; Basse, Owan, Eze, 2019; Okafor, 2018). Research productivity is, therefore, a robust measure of scholastic achievement in academia, and it is through research that the status of an academic is often determined among peers.

Previous studies have pointed to a lack of information literacy skills but some recent studies identified factors that might have hampered the direct research productivity expectancy concerning information literacy skills possessed by an academic. A study carried out by Nwosu, Obiamalu and Udem (2015), investigated the relationship between the information literacy skills of academic staff in a Nigeria University and their research output. It was revealed that the level of information literacy skills possessed by the academic staff is moderate and this moderate is not enough to produce the desired effect, the study also indicates that there is a significant and positive relationship between the level of information literacy skills possessed by the academic staff concerning their rank which might be due to some motivation factor or time availability. Also in another study by Afolabi and Oladokun (2020), to evaluate the relationships between information availability, information literacy skills and research productivity among scholars in a Nigerian university, the analysis of the findings further shows that the

research productivity of the academic scholars is low due to some factors limiting their productivity such as lack of infrastructure facilities, lack of financial support, work overload, lack of information resources, lack of personal development among others. Therefore, some factors have been discovered responsible for low research productivity even with moderate information literacy skills.

Conclusion

The outcome of this study has revealed the need to encourage academics, librarians, researchers and all students to acquire information literacy skills. A high level of research productivity is fuel to national development and possession of information literacy skills has been recognized as the major tool that enhances research productivity. It is also revealed that lack of infrastructure facilities, lack of financial support, work overload, lack of information resources, lack of personal development and others have hampered high-level research productivity. Therefore academics, librarians, researchers and students alike must possess information literacy skills to improve research productivity to generate the quality and quantity of research productivity that will make the desired impact.

Recommendations

Based on the findings and conclusion drawn from the study, information literacy skills would significantly influence the research productivity of academic librarians. Therefore, it is recommended that:

1. Librarians should be on top of their game by acquiring all the necessary information literacy skills and developing them with the advent of a new trend in librarianship to enhance the level of their research productivity.
2. Library management should formulate policies to build more capacity development to enhance competencies in information literacy which will, in turn, enhance research productivity.
3. Parent institutions like universities should see the need to train librarians in acquiring competencies in information literacy skills by giving them ample time to attend workshops, seminars, and pieces of training, both local and international.
4. Universities and other tertiary institutions should seek more financial aid from donor organizations and government agencies such as Tertiary Education Trust Fund (TETFUND) to fund research activities that will serve to boost the morale of academic librarians and other academics to engage in research for better productivity.
5. Policy makers should prescribe research productivity expectancy for universities and other tertiary institutions.
6. There is a need to proffer solutions to challenges that prevent the expected level of research productivity like lack of Infrastructure Facilities, Lack of Financial Support, Work overload, Lack of Information Resources, Lack of personal development and others.
7. All arms of government and other educational agencies should make a concerted effort towards improving research productivity in Nigerian tertiary institutions and other research agencies.

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