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## Librarian role in research library services in Indonesian Institute of Sciences

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### ABSTRAK

**Pendahuluan.** Di perpustakaan penelitian, peneliti merupakan stakeholder utama. Seyogyanya, pustakawan merupakan *partner* dari peneliti dalam melakukan penelitian. Akan tetapi, seorang peneliti jarang melibatkan pustakawan sebagai mitra dalam melakukan penelitian. Secara umum, pustakawan hanya dilibatkan sebagai asisten peneliti untuk melaksanakan kegiatan administrasi seperti mendistribusikan kuesioner atau mengirimkan surat undangan. Pekerjaan seperti desain penelitian, pembuatan instrumen kuesioner, atau analisis data tidak melibatkan pustakawan.

**Metode penelitian.** Menggunakan wawancara terhadap empatbelas pustakawan LIPI kampus Gatot Subroto, Jakarta.

**Data analisis.** Menggunakan metode analisis kualitatif. Data wawancara dikategorikan dengan menggunakan kode terbuka.

**Hasil dan Pembahasan.** Hasil analisis wawancara menyebutkan bahwa 86,7% responden pernah terlibat dalam kegiatan penelitian yang dilakukan oleh pusat penelitian di unit yang sama atau berbeda. Dari hasil tersebut, 53,3% responden pernah terlibat hingga 5 kali kegiatan penelitian. Sedangkan seorang pustakawan yang jawabannya sering terlibat dalam penelitian ini adalah 13% responden. Beberapa rekomendasi dari responden adalah: seorang pustakawan sebagai pemeriksa plagiarisme proposal penelitian, seorang pustakawan harus melek teknologi informasi, seorang pustakawan dilibatkan untuk memeriksa tinjauan pustaka yang digunakan dalam proposal dan naskah ilmiah.

**Kesimpulan dan Saran.** Peran pustakawan tidak hanya sebagai asisten peneliti dalam tinjauan literatur atau pengumpulan data tetapi sebagai konsultan penelitian atau sebagai peneliti untuk dokumentasi dan informasi.

**Kata Kunci:** peran pustakawan; perpustakaan penelitian; profesi pustakawan; layanan data penelitian

### ABSTRACT

**Introduction.** In a research library, researchers are the main players, while librarians should be the partners in conducting research even though this combination rarely happens. In general, librarians are only involved in a part of research activities as their research assistants to carry out some administrative stuffs, such as distributing questionnaires and sending invitation letters, instead of designing a research plan and/or some questionnaires or doing data analyses.

**Data Collection Method.** We interviewed librarians in the Center for Political Studies, Research Center for Economic, Center for Science and Technology Development, and Center for Scientific Documentation and Information of Indonesian Institute of Sciences, Jakarta.

**Data Analyses.** Data were analyzed using qualitative analysis methods, through the direct interview, where data categorized by using open coding.

**Results and Discussions.** The results stated that 86.7% of respondents had ever been involved in research activities carried out by the research center in the same or different units. From that result, 53.3% respondents ever engaged research activities up to 5 times in a year. In the other hands, librarians who answer conduct independent research and are often involved in the research are 13% respondents. Some recommendations figured out from this research are (1) a librarian could be a plagiarism examiner for a research proposal, (2) a

librarian must be literated in information technologies, (3) a librarian should be involved in examining a literature review of the proposal and writing the manuscripts.

**Conclusions.** *The role of a librarian is not just as a research assistant or a data collector but as a research buddy who could help addressing some documentative problems.*

**Keywords:** *librarian role; research library; profession of a librarian; research data services*

## A. INTRODUCTION

The role of librarians, in general, are managing library collections, providing information services, and maintaining library information systems. In the digital era, some work on managing physical collections has gradually disappeared or may have never been used anymore (Borgman, 2002). Book labeling has been reduced because of the small rate on purchasing some collections of new books. Shelving is seldom done because of a few visitors. In addition, researchers have less frequently visited a library to get some information since they could retrieve it from the internet. Thus, the work patterns of librarians need to change. As disciplines move from a paper to a digital framework, librarians who work in both the digital and paper realm can help bridge some of the gaps between older and newer forms of information (Fortin & Mueller, 2013). The ever changing information needs of users brought expanded and new roles for librarians to equip with various emerging skills to stay relevant in the emerging knowledge and digital ecology (Cherinet, 2018).

Although the management of collections begins to diminish, it does not mean that librarians lose their important roles, such as supporting the achievements of their organization goals and several research activities organized by some researchers. When they need data to support their research topics, librarians have a significant role in collecting and compiling some information regarding the topics (McCluskey, 2013) while planning and preserving some additional information regarding the research activities.

Historically, the library's relation to research has been understood through the lens of the library's "principal roles of collection management, reference work, and library instruction" (Jaguszewski & Williams, 2013).

According to (Falciani-White, 2016), information seeking is often equated with research. But the role of libraries associated with research seems to undergo a more fundamental reconstruction.

Librarian role on research data management have been identified by Andrew include policy, advice and signposting, training, auditing of research assets, and creating institutional data repositories (Cox & Verbaan, 2016). Librarians have many expertises and been experienced in collecting some literatures, which are useful to formulate research topics. Open access journals and copyrights are closely related to the librarian professions. Researchers can take an advantage of their expertises so that no ethical violations will happen when they they make a scientific publication. However, in general practice, librarians are not much involved in some research activities, unless they are only committed as their research assistants who assist financial, administrative, or secretarial work.

Therefore, the aim of this study is to identify the roles of librarians involved within research activities and what skills are needed to improve by librarians in term of providing research supports and services. Identification is done by interviewing librarians who work at LIPI on the Gatot Subroto campus. We expect that this study could be used as a recommendation to tackle and upscale the roles of librarians in some research institutes. Librarians are not only as information providers but as creators of knowledge.

## B. LITERATURE REVIEW

Although technological innovations over the past two decades have significantly impacted libraries, librarians have adapted to these changes while holding on to the library's core functions. Over the past twenty years, the service aspects in libraries -particularly in

specialized libraries such as map and data libraries - have increasingly started to include teaching, in-depth research consultations, and even partnership in research outside the library (Fortin & Mueller, 2013).

Research skill and knowledge are the essential tool kit for ensuring that libraries and librarians continue to effectively and efficiently meet the evolving needs of the clients and communities they serve (Partridge, Haidn, Weech, & Connaway, 2014). In the research lifecycle, activities such as helping with data management plans, building data catalogues and running data repositories are particularly significant changes to librarian role in the digital era.

There is a need in South Africa for librarians to acquire new values, competencies and skills to be of assistance to researchers (de Jager, Nassimbeni, & Crowster, 2014). In the study involved 25 participants from five institutions in July 2012 to purposes understanding of the challenges inherent in the world of the researcher. Research result mentioned that there is a genuine need in South Africa for generalist librarians to specialize and acquire significant new values, competencies and skills in order to be of tangible assistance to researchers.

### 1. Librarian role

(Ilesanmi, 2013) states that the roles of librarians in the research library include:

- *Collection Development.* The selection of library collection could be a task which is embedded for a librarian. Librarians ask the researchers to determine what kind of collection is needed. The collection development depends on a budget from the government.
  - *Knowledge Organization.* Cataloging and classification of resources are two crucial main roles of the librarian. Librarians make a controlled subject or keyword based on Classification Scheme like Dewey Decimal Classification (DDC) and Library of Congress Subject Heading (LCSH).
  - *Preservation.* The librarian has a vital role in a preservation process ensuring some documents are in an excellent condition, free acid, controlled temperature, and enough lighting. The librarian should preserve the collection for long term access.
  - *User Services.* Another important role of a librarian is being an information officer. Librarian helps the patron in obtaining information. Information packaging is a way to give some excellent services to patrons. Some examples of their services are the library loans, information literacies, and reference services which are the service section provided by some librarians in a research library.
  - *Personnel Management.* as the personnel managements, they must have abilities to forecast the demand and the availability of required personnel. They enhance personnel skills through trainings and career developments. Moreover, they put the right staff in the right place.
- (Wilson, 2016) has interviewed some colleagues as a senior librarian. From some question asked, one of their answers states that traditionally, librarian research hasn't been "very good". He has compiled six strategies to consider that may make librarian research "better" i.e:
- *Confidence.* The librarian practitioner-researcher often suffer imposter syndrome, self-deprecation, low research self-esteem, and lack of confidence in research skills.
  - *Collaboration.* Teaming up with a like-minded colleague allows you to have a second set of eyes or more, split the work, share the credit, also learn and grow as a researcher.
  - *Mentorship.* Research mentor is important to comment on drafts of work, help with grant writing, and suggest avenues for dissemination. Age isn't a factor as there might be an early-career librarian who is well versed in a specific methodology mentoring a later career librarian who is a novice in that area.
  - *Practice.* Every research takes practice to improve research quality. The collaborations and mentorship can help early-career librarian researchers to get where they are going.

- *Education.* The librarian can take a research methods course research lifecycle, basic how-to knowledge, and other topics pertaining to research to professional development.
- *Development.* A librarian needs a strategy in their profession towards associations, groups, and organizations. Research topics in the future are defined and targeting research topics to move the speciality forward as well as provide collaboration and mentorship opportunities with the goal of making librarian research better.

Metadata librarians who work in research and development institute, differ from librarians in general. They are more focused on the subject's expertise to describe the data produced by researchers in images, video, text, and audio. (Chapman, 2013) states the main role of a librarian in the research library i.e:

- *Collaboration.* The collaborative role is internal to technical services, as well as external. The metadata librarian must work with technical service staff to develop procedures and documentation for making metadata that supports their work as efficiently as possible, especially to changes in produce conventional catalogues to digital.
- *Research.* Research is understood to mean systematic investigation and inquiry. The metadata librarian can act as a researcher in an effort to find standard metadata information are defined, edited, and created, and new ideas. The metadata librarian seeks to find information that will speed the development of new initiatives within the library
- *Education.* Meshes tightly with the roles above, metadata librarians must provide education to technical staff to ensure the application of new standards and procedures for managing digital library collections. This is to ensure that the goals of creating efficient and effective metadata are present in all new library and information technology initiatives.

- *Development.* Metadata librarian is required to always innovate in developing methods to migrate, convert, and enhance metadata, making decisions on how best to balance new possibilities and existing realities. The metadata scheme is indeed complex so that any needed migration or conversion can be did as efficient as possible.

Resulted from a result conducted by Janke, Robert and Kathy L. Rush (2014), the role of librarians in a research team is as a co-investigator. Librarians play a role in the entire process of developing knowledge to dissemination. The various tasks carried out by librarians, namely the submission of funds through the grant application, worked on literature reviews ranging from making proposals to making paper manuscripts. (Cherinet, 2018) citing to numerous researchers (Bell and Shank, 2004; Corral, 2010; Dunaway, 2011) emphasized the future roles of librarians as teachers and educators.

Another role of librarians is to do research (Ibegbulam & Jacintha, 2016; Whitmell, 2017). A librarian is also a researcher. By conducting research, librarians can improve their librarianship portfolio and contribute to developing science. However, librarians assume that research is only carried out by people who work as researchers (Cox & Verbaan, 2016). The library environment does not support librarians to conduct research, such as the existence of routine librarian assignments, lack of support from experienced colleagues, and the absence of mentors (Ibegbulam & Jacintha, 2016; Whitmell, 2017). Research libraries that managing digital production may place a metadata specialist in the unit given responsibility for digital collection maintenance and development.

## 2. Librarians skill

One of the role changes is the need for a librarian to conduct research (Whitmell, 2017). Librarians must have research competencies, either to do their research or to assist other people's research activities. Librarians can navigate issues related to copyright and open

access policies from funding agencies (Janke & Rush, 2014). (Committee, 2018) state that “Top ten trends in academic libraries” have considered the kinds of skills and competencies required by librarians in order to remain relevant into the future. Many of these competencies such as fake news and information literacy, project management, textbook Open Educational Resources (OER), research datasets acquisition, text mining, data science, learning analytics, data collection, ethical concerns, and collection management.

Data research services are being critical. College libraries in North America currently provide research data services (Tenopir et al., 2017). Research data services (RDS) provided by libraries is various. It includes creating and managing institutional data repositories, providing tools for data mining and visualization, training for researchers on data management activities, guiding on institutional policies, generating data management plans and metadata for data sets, and getting assisted with intellectual property and privacy issues surrounding research data, and other services. Librarians should have expertise related to the RDS.

Research by LIS practitioners is needed to create new knowledge and thereby contribute to the growth of LIS as a profession or discipline. (Powell, Baker, & Mika, 2002). By contributing to research activity, decision making is more increase, problem-solving, critical and analytical thinking; the development of more critical consumers of the research literature and librarians who are better equipped to provide user-centred information services; the opportunity for career advancement; and the enhancement of staff morale and librarians' stature (Partridge et al., 2014).

According to (Cherinet, 2018) citing to Canadian Association of Research Libraries state that encapsulated competencies needed for librarians under seven areas 1) foundational knowledge; 2) interpersonal skills; 3) leadership and management; 4) collections development; 5) information literacy; 6) research and contributions to the profession; and 7) information technology skills.

According to Brown and van Tryon (2010) cited (Cherinet, 2018) state that categorized skills into three main skill groups: learning and innovation skills; information, media and technology skills; and life and career skills. To be a professional, librarians should be equipped with skills needed for the traditional fundamental functions like cataloguing, classification, indexing, reference service, and user education (Warrier, Shivarama, & Angadi, 2015).

## C. METHODOLOGY

### 1. Data Collection

#### a. Participants

The method used for data collection is the interview to some LIPI's librarians. According to the act number 43 of 2007, Librarian is someone who has some competences gained through education and/or training in the field of librarianship and has duties and responsibilities to carry out library management and services. LIPI librarians are someone who works in a library as a working unit of LIPI and has duties and responsibilities to the library management and services. The librarians in LIPI are also often involved in various research conducted by LIPI researchers. The total number of the librarians in LIPI is 53 persons. We interviewed them, located in Gatot Subroto Campus, as a librarian to find out interesting phenomenon that may lead to reveal their function within the organization. Before an interview with a respondent candidate, we created a question instrument. Type of the questions in the interview is an open answer. The respondents are the freedom to answer according to their perceptions.

We used our smartphones to make some recording of data collection. An interview was made from January 10th to Januari 20th, 2018. the result from audio then was converted to be texts by transcribing the recordings. Not all of the transcripts translated, but the meaning of answer from a respondent summarised. The respondents classified in the two groups,

i.e., skilled level librarian and expert level librarian. Total of a respondent in the interview were 14 librarians.

#### **b. Instruments**

We made a question instrument as an interview guidance. The questions were short and meaningful. So, it is easily understood by respondents, and they can answer effectively and efficiently in term of time.

## **2. Data Analysis**

Data analysis was done using Excel 2013. Descriptive analysis was used to synthesize interview results. Interview data is categorized using open code.

## **D. RESULTS AND DISCUSSIONS**

Some positions in a library affect skill required e.g: administration, analysis of library problem, and formulation creative solution. Such positions require professional training and skill. In the library, information science, library science or another field, such as educational communications and technology, management, public administration, and foreign language and literature are knowledge requirements. While the minimum educational requirement is a Master's degree (Seminelli, 2016).

(Ibegbulam & Jacintha, 2016) has studied to investigate the factors that contribute to high productivity in research and publication among librarians. The specific objectives are to find out: librarians' motivation for research and publication, the factors that contribute to high research productivity among librarians, the barriers to research and publication among librarians, and determine the strategies that will enhance research and publication among librarians. Table 1 shows that the various factors motivate the respondents to engage in research and publication. However, the desire to earn a promotion, self-interest and discipline, desire to contribute to research in the profession and desire to raise the library and personal profile generally motivate librarians to a very high extent.

Table 2 shows that collaborating with other colleagues contributed to the respondents' publication output to a very high extent. On the other hand, the availability of mentorship, attendance to conferences, and interest to study be a factor which importantly contributed.

When respondents are asked about inhibitors/barriers to high publication output among librarians. The respondents strongly agree that weak/poor research orientation of librarians hinders publication with a mean score of 3.58 (shown in Table 3).

Table 4 shows collaborative writing, a research grant to librarians, creating schedules for librarians to enable them to have time for research, and enhancing librarians' attendance to conferences are various strategies for enhancing research and publication among librarians, given scores of 3.50–3.55.

Indonesian Institute of Science (LIPI) is one of research institutes in Indonesia. LIPI consists of 40 research centers. Many of them have some librarians. They support the research activities conducted in the research center. All of the librarian activities in LIPI is coordinated by the center for Scientific Documentation and Information (PDII). This center is the main center which manages many scientific results which produced by several LIPI's research projects. Library division in LIPI is categorized as a research library. The traditional roles of some librarians include developing scientific collections, organizing some basic knowledge, disseminating and managing some scientific information, preserving some scientific contributions, and satisfying users who need some scientific information.

The purposes of an interview conveyed in this study are giving some points of views against the librarian's role on managing research data which will describe the research project. The main task of librarians is being active in the scope of librarianship including the library management, library services, and system development of the librarians are conducted by each librarian according to the function level (Indonesia, n.d.). LIPI has 40 research centers based on the type of scientific subjects in which the researchers involved

including life sciences, earth sciences, social sciences & humanities, engineering sciences and scientific services. Not all of the research centers has a complete library for managing research data. The condition of research library in every research center figures out the careers of the librarians.

The previous survey conducted by (Tenopir et al., 2017) mention that European academic research libraries are more likely to offer consultative-type RDS services than hands-on/ technological services. Analyses show clear differences between regions in offering RDS. Libraries in the West region are offering RDS more often compared to other regions. Services such as information retrieval about a data management plan, metadata, and data standards are more likely to be offered rather than technical RDS.

The library management and services can be the indicators in the assessment of a librarian. In the implementation, a librarian depends on the job criteria. For example, how often a librarian is in the quick reference services or simple search. The functions would be active if the demand is existed.

In the digital age, it is easy to find some information. Researchers can search, use, and create new information resources from anywhere and soon may be able to do so from their automobiles, buses, planes, trains, or even when they have a holiday at beach. This idea takes an effect on the library services in which a librarian has more free time and less outcome coming from the decrease of library visitors. The library management in the library collection is also dropping because it is impossible to add some new collections if there is no more visitors.

The scientific articles managed by Center for Scientific Documentation and Information would be the responsibilities of a librarian. Collecting data, validating metadata, creating subjecta, verifying keywords, and reviewing literatures as parts of data management of a research activity are the routine activities of a librarian in LIPI.

For librarians who keep up their professions, they must have some skills and expertises as required by the researchers so that

they can involve in the research. A more subtle concern is that while librarians are playing ever-larger roles in making information resources available, their work is becoming less visible (Borgman, 2002).

From the interview, 86.7% respondents have ever been involved in the research activities conducted by the research center in the same unit or different. From that percent, 53.3% respondents have ever been engaged to 5 times, whereas some librarians whose responses have often been got involved in some research activities are 13% respondents.

When an interviewer asks "why did you interested in some research activities?", A respondent answers with some arguments to explains their position over the research activities covered. We made a classification for the respondent's entire answers related to a proper job position as a librarian. A respondent can answer more than one. For example, the answer tells us that the proper job for a librarian is being a data support and at once as a data analyst. As much 86.7% respondents answer that the reason why they are interested in getting involved in some research activities is their professions. Another respondent admits a desire to look for about a world of research.

The following items are other several recommendations coming from the respondents:

- A librarian is a plagiarism checker of a research proposal
- A librarian has to be brave to some changes, information technology literates, and self-developments
- A librarian should get involved for literature review checking of the proposal
- A researcher should often involve a librarian in the research activities
- The main role of the librarians in the research activities has support their job positions.

Librarians have the skills and expertise in the management of scientific documents or libraries, such as journal articles, books, proceedings, research reports or other scientific documents. Based on the Library Head Regulation Number 11 of 2015, there are 3 main

tasks of a librarian, namely library management, library services and the development of a librarian system. For the position of expert librarian, conducting studies in the field of librarianship is an activity that has also be carried out. Referring to the point, it means that librarians are not only required to be research support but also able to do research independently. But most librarians at LIPI are still struggling with cataloging activities. Librarians at LIPI should provide more services that support research at LIPI because LIPI is an institute that has a major focusing on research activities.

With the existence of a repository and depository system that is currently being developed by various institutions including LIPI, librarians have to well prepare. If all this time the objects processed by librarians are only limited to publications, the future research data will also be obtained. Librarians need subject knowledge to manage data and there is a culture of self-sufficiency among scholars (Tamaro, Matusiak, Sposito, Casarosa, & Pervan, 2017). Curating data to be a new role for librarians in manage research data which deposits in the Repository System. Not just completing metadata, but add information like a guide to using the data, software to produce data, checking the originality of data, ensuring the quality of data, etc.

#### **Benchmarking of research data services:**

From the interview result, one of important services in research library is research data services. Some libraries have been enhanced their role in supporting research activities. The focus area in providing research data service in some academic library are the following:

1. Iowa State University (ISU) enhance their research data services in term of staffing, collaboration, and facilities (Brundy & Donnell, 2019): (1) Staffing. They propose two new data services position namely Data Education Specialist and Data Curation Specialist. Data Education Specialist give training on the specific data tools such as Jupyter Notebook as an open science publishing tool and programming languages, such as R and Phyton. While Data Curation Specialist supports the services in term of publishing the material through DataShare. (2) Collaboration. The other stakeholders which collaborate with the library are unit in the area of technology, methodology support, compliance, legal, data projects, and intellectual property. (3) Facilities and technology. They provide a workstations with specialized software as a space for data management consultation.
2. Two main Drexel University Library' initiatives were reviewed the organizational structure and strengthen the information technology infrastructure (Nitecki & Davis, 2017). The library needs additional expertise in the field of data analysis, financial analysis, communications, and marketing. Adequate information technology infrastructure is needed for long term discovery and retrieval of data.
3. (Lassi, Johnsson, & Golub, 2016) conducted an exploration of research data services at two Swedish universities. Library should provide training for researchers in term of data ingestion and data organization and description. The goal of that training is enhancing the researchers' capability in disseminate their data. In many cases, researchers do not have the time to disseminate their data into the repository. They need librarian help to deposit data.
4. Cape Peninsula University of Technology (CPUT) Library provides research data services within the e-research environment (Chiwere & Mathe, 2016). Limited librarian skill is one of the biggest challenges in offering those services. CPUT designed three years of the special skill development programme for the librarian. The special skill are in term of understanding of institutional research processes and policies, research support tools, communication and collaboration, current awareness, research methodologies, bibliometrics, intellectual property rights, publication processes and requirement, and academic networking.



In the librarian's report, there is actually an activity in managing bibliographic data in the form of a digital database. This activity includes maintenance of data listings in electronic database systems such as updating, backing up, indexing/inverting bibliographic data according to the standard system. This action item may be able to accommodate research data management (RDM) activities needed in the research library. However, it still needs to be added in more detail in the technical implementation of librarian activities so that the work of librarians in research libraries, such as the manager of research data, can be well accommodated. If the librarian's functional technical guidelines and operational guidelines have been able to accommodate research data management activities, RDM activities can be more optimally carried out by librarians, especially librarians who work in research libraries. Therefore, the technical guide for functional of librarian need to be revised appropriate digital age in the data management.

## E. CONCLUSIONS

Librarians are expected to combine the traditional roles with the present-day roles since they have come a long way as navigators who are well versatile in the use of technologies. Libraries of the present-day need librarians who are educated, experienced, intelligent and resourceful (Idiegbeyan-Ose & Ilo, 2013). Prior to the digital era, the tasks of a librarian have been finished in the traditional ways i.e. aggregation, curation, and classification of literature which is a purpose to preservation. In the digital age, acquisition, processing, dissemination, and preservation are increasingly easily done with information technologies. Almost 70% respondents are not aware that some activities like collecting, processing, and analyzing data as well as helping some researcher in writing a scientific paper are closely related to a profession of a librarian. Most researchers are amenable to receiving librarians' expert assistance with multiple aspects of data management, particularly given their own limited resources and the many other demands on their time and

energy (Flores, Brodeur, Daniels, Nicholls, & Turnator, 2015).

When a researcher need some helps to a librarian for collecting literatures related to a research topic, a librarian has indirectly been a good partner to support his research and development activities. The role of a librarian is not just a research assistant in a literature review or data collection but as a research consultant or a researcher for some documentations and information. People have never been understood the role of the librarian in acquiring, maintaining, and providing structured access they encounter in the library yet. The general perception about libraries is more than librarians, whereas there are also researchers in the fields of information, documentation, and library science in a library management.

Every research centre in Indonesian Institute of Sciences requires librarians who has subjects specialist role or metadata librarian to manage research data. Researchers need to involve a librarian when starting to research design until publishing papers. It is not involving them when research project was finished. The librarian's role is undoubtedly changing, taking a stronger, more visible position of teaching and research, thus becoming an important part of the university in a new way. Close collaboration between librarians and researchers is a fruitful way of developing information literacy skills and a deeper understanding of the research process (Daland & Walmann Hidle, 2016).

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## TABLE LIST

Table 1. Librarians' motivation for research and publication

S/N	Items	Response	
		Mean (X)	Decision
1.	Desire to earn promotion	3.66	Very high extent
2.	Self interest and discipline	3.54	Very high extent
3.	Desire to contribute to research in the profession	3.50	Very high extent
4.	Desire to raise the library and personal profile generally	3.16	High extent
5.	Recognition among colleagues/peers	2.95	High extent

Source: (Ibegbulam &amp; Jacintha, 2016)

Table 2. Factors that contribute to the librarians' high publication output

S/N	Items	Response	
		Mean (X)	Decision
1.	Collaboration with other colleagues	3.50	Very high extent
2.	Availability of mentorship	3.21	High extent
3.	Attendance to conferences	3.12	High extent
4.	Ability to study broadly	3.08	High extent
5.	Possession of advanced degree	2.95	High extent
6.	Enabling organizational/library environment	2.90	High extent
7.	Membership of writing clubs	1.70	Low extent

Source: (Ibegbulam &amp; Jacintha, 2016)

Table 3. Inhibitors/barriers to high publication output among librarians

S/N	Items	Response	
		Mean (X)	Decision
1.	Most librarians have weak/poor research orientation	3.58	Strongly agree
2.	Absence of institutionalized mentorship program	3.33	Agree
3.	Most library environments are financially unsupportive	3.25	Agree
4.	Lack of personal research agenda	3.25	Agree
5.	Lack of support from more experienced colleagues	3.20	Agree
6.	Inflexible work schedules of librarians	3.12	Agree
7.	Non-attendance to conferences	2.95	Agree
8.	Lack of discipline	2.95	Agree
9.	Ignorance of where to publish	2.79	Agree
10.	Fear of rejection by editors	2.75	Agree

Source: (Ibegbulam &amp; Jacintha, 2016)

Table 4. Strategies for enhancing research and publication among librarians

S/N	Item4	Response	
		Mean (X)	Decision
1.	Advocating collaborative wiring	3.55	Very high extent
2.	Issuance of research grant to librarians	3.52	Very high extent
3.	Accommodating schedule for librarians to do research	3.50	Very high extent
4.	Enhanced attendance to conferences to get more exposure about research and writing	3.50	Very high extent
5.	Liasing with research funders	3.12	High extent
6.	Institutional in-house conferences	2.95	High extent

Source: (Ibegbulam &amp; Jacintha, 2016)