

## **Library and Information Resources for Effective Scientific Research In Nigerian Universities**

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### **Abstract**

The article identified the major objectives of Nigerian universities to include contribution to national development through high level manpower training etc. The methods of achieving these objectives were found out to include, but not limited to teaching, research and development. The term scientific research, as a major variable of this article was defined as it relates to a method of achieving the objectives of Nigerian universities. The numerous types of information resources utilized by scientists and students for research purposes were also identified. Information resources for scientific research were initially classified into three major categories. These include the primary, secondary and tertiary sources of information. With the current development in information handling, creating, usage and management it was revealed that information resources are now classified into only two categories to include those in print and non-print format. While the print formats of information resources were found out to be those published in book form, the non-print are the Information and Communication Technology facilities. The major objectives of classifying information resources for scientific research are to determine their relative currency and accuracy. The paper concluded that for any reliable and effective research, the research scientists and students in universities should rely more on primary sources of information and internet facilities. It was recommended among others that university libraries should spend more of their financial resources on acquiring primary sources of information and ICT facilities and a consortium of university libraries should be established to facilitate sharing of current information resources so as to meet the information needs of both scientists and students.

### **Introduction**

The major goals of tertiary institutions in Nigeria and the universities in particular, according to the National Policy on Education (2004) are to contribute to national development through high level man power training, develop and inculcate proper values for the survival of the individual and the society, and develop the intellectual capability of individuals to understand and appreciate their local and external environments among others. That is why all the stakeholders in the educational system aim at acquiring, utilizing, creating and spreading new ideas down and up the ladder so as to enhance the knowledge base of the academics and students. Consequently, this impact positively on what they do and how they do it in order to achieve desired objectives for which the institution is established.

In order to achieve the prescribed goals, the NPE goes further that institutions shall pursue their goals through teaching, research and development. This paper is concerned with the type of information resources that could enhance the research component of the ways of achieving educational objectives.

Scientific research has to do with finding solutions to problems both on ground and anticipated. Ifidon and Ifidon (2007) opines that research is man's systematic and imperial investigation into available but hidden elements in Nature with a view to unearthing, restructuring and explaining these elements for the purpose of development. Because of this,

students at their final levels (undergraduates and postgraduates) in the universities are mandated to produce research projects, theses and dissertation as necessary requirement for award of various degrees. In addition to that, lecturers at all levels are expected not only to teach students with the most current ideas but also undertake research in their various disciplines so as to enhance national development. In order to achieve the research objectives, there is the need to have access to most current, relevant and reliable information resources which are expected to be provided by university libraries.

Information resources needed to satisfy the information needs of researchers are all the materials and equipment which the librarians draw upon to provide scientists with required information. Aliyu (2008) argues that information resources could be broadly classified into two – print and non-print. For the purpose of clarity, Bitagi (2012) opines that information resources include journals, technical reports, theses and dissertations, textbooks (and all resources in print format) and information communication facilities that provide and or store required information to meet the information needs of researchers.

Despite the fact that scientists and students in Nigerian universities have used various forms of information resources to write their research articles, projects, theses and dissertations, it is not clear if they know how these resources are professionally classified according to their currency by librarians. This paper was initiated to achieve that objective.

### **Classification of Information Resources**

Information resources for scientific research are varied. Because of their variety, it is ideal to classify them according to their currency. This is necessary because Katz (1978) argues that while considering delays in publishing which takes weeks, months or even years (and) may be out of data before they get to the user, it becomes imperative to classify these materials in order to measure their relative timeliness. In view of that, Katz classified them into three categories. These include primary, secondary and tertiary sources of information.

Primary sources, according to Katz are original materials which have not been filtered through interpretation, consideration or often even evaluated by a second person. These resources tend to be the most timely or current in the libraries. They normally constitute those that are referred to as journal articles, monographs, reports, patents, dissertations, reprints of an article, experimental research results, diaries, speeches, statistical data such as census statistic etc. It must however, be emphasized that where primary sources are available in the library, the control to call them up for utilization are usually classified into the category of secondary information resources. Such controls include indexes, abstract, bibliographies and catalogues etc. However; it must be noted that some primary sources of information are not published. For example, the offering of first-hand information such as ‘I was there’ or ‘I discovered’ or ‘I interpreted’ etc verbally by one person to another or group of people in meetings, conferences, and seminars where intellectual ideas are shared are primary sources of information. Primary sources of information are mostly used by scientists to avoid duplication of researches and time wasting. These sources are therefore, mostly used for literature review so as to be able to compare the present research and previous ones. They normally justify the basis of the research at hand.

Secondary information resources are those that concern themselves with information about primary or original information. Thus, they are primary sources that have been modified, selected, interpreted and rearranged for specific purposes. Sometimes, the neat distinction between primary and secondary sources is not always apparent (Katz, 1978). For example, a person at a conference may not be stating his/her original views, but may just be reporting what he/she has read or heard from someone else. As mentioned earlier, a journal article is usually a primary source if it represents the original thinking or a report on a discovery, but such journal may include secondary materials. These materials are those used by researchers to support their views such as the summaries of the findings of other scientists

used as literature review. The secondary information sources are best used in the introductory part of a research report.

The tertiary sources of information consist of information which is a distillation and collection of both primary and secondary sources. These sources are twice removed from the original and are made up of library collections often regarded as reference materials. These sources normally give a brief and necessary background on various disciplines and may be used for a scientific study where definitions and some clarifications are sought.

Ojedokun (2007) also agreed with the above classification of information resources. However, the author is of the view that secondary sources are less easily defined than the primary source of information. This, according to the author is because what some define as a secondary source, others define as tertiary source. Even with that, the author argues that the secondary sources describe, interpret, analyse, synthesize or assess the primary sources of information. Ojedokun's view of tertiary sources is that they provide information for an overall feed of the subject or initial stages of searching but provide little substance to support academic statements. This view corroborates the one earlier on observed that both secondary and tertiary sources of information play insignificant role in proper scientific research. They could however, be used for definitions and clarifications where necessary.

The major objective achieved by the above classification of print information resources are that the relative currency and accuracy of information resources for scientific research have been pointed out. Thus, the primary sources of information have achieved the two qualities because they represent unfiltered and original ideas of the authors and are hereby recommended of serious scientific research. That is to say that the above classification of printed information resources serves as a pointer to the fact that when information resources come to be considered for scientific research purposes and even for collection in university libraries in Nigeria, attention must first be paid to those that belong to the group of primary sources since they are the ones that will keep the users informed of the recent development in their areas of specialisation or research. Meanwhile, the secondary and tertiary sources must also be considered since they serve the purpose of giving supplementary and necessary information to the primary sources and even facilitate their location in the library system.

In addition to the above, more recently, information resources have been classified into only two categories. These are print and non-print information resources. While the print information resources fall into the category of those that have been classified into three groups, that is primary, secondary and tertiary sources, non-printed sources or e-resources according to Ikhizama (2004), are those that provide the most current information resources without due respect for geographical barrier. These are referred to as Information and Communication Technologies (ICT). The ICT, as sources of information seem to have swallowed the other conventional sources of information since the latter can be found in the former. Thus, Opaleke and Adeseko (2008) note that there is no doubt in the fact that frequency with which the potential of the internet and indeed WWW appear in the pages of papers and electronic media is so alarming that one can hardly resist getting hooked to the internet or even develop a website as a matter of urgency. This view portrays the extent to which there is the need for any serious researcher to rely heavily on ICTs to carry out modern research. This is because of the variety of information services the ICT provides to its numerous users. For example, Oketunji (2000) opined that the high level of connectivity through the internet fosters an unparalleled degree of communication, collaboration, resources sharing and information access.

The above analysis calls for the connectivity of all university libraries so as to enhance the quality and quantity of researches that could be undertaken by their lecturers and students. This is because the internet has become a valuable tool for collaborative research among scientists (Ojedokun and Owolabi, 2003). Interestingly, Oketunji (2001) corroborated

the above view when the author argues that the function of the internet has always been to provide a way for researchers to have better access to each other and as a tool to facilitate research.

Conclusively, it could be stated without mincing words that the sky is the limit, as far as acquisition and utilization of desired information for Nigerian universities is concerned, if they have access to the internet through their libraries or elsewhere. The resultant effect of this access to the internet will be improved and enhanced research output. Consequently, Nigeria will have unlimited development in all sectors of national economy.

### Conclusion

From the above analysis, it could be concluded that for any reliable scientific research, the primary sources of information should be the first point of call. This is because they represent the original output, thinking and findings of authors. They should also be sought for so as to avoid duplication of research and therefore save the scientist his/her precious time.

### Recommendations

Based on the analysis of information resources, the following recommendations are made:

1. University libraries should spend a greater percentage of financial resources devoted to print information resources on those that belong to the category of primary sources.
2. For reliable and qualitative research, researchers should use more of primary sources of information since they represent the original thinking of researchers.
3. Above all, scientists should devote their time to the utilization of *information and communication technologies* since they store and provide information about *all print information resources*.
4. Internet connectivity should be regarded as a necessity by all university libraries to enable them assist researchers meeting their current information needs which may be scattered all over the world.
5. Due to multiplicity of information resources in any given discipline, a consortium of university libraries should be established so as to facilitate one university having access to the information resources of other universities.

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