

unending resource that affects all disciplines as it supports education, research and development. Majority of libraries' technical applications are in collection, handling, storage, and dissemination of information. Technologies, especially computer and telecommunication technology have highly revolutionized the field of library and information services. They facilitate collection, storage, organisation, processing, analysis, presentation, communication and dissemination of information. With the introduction of new technology, libraries are expected to use various types of technology to provide information, more quickly and in greater volume than before.

The advantage of IT applied to information retrieval is the immediate and local access to a much wider range of library resources. Information technology has also made an impact of the alerting services, mainly by providing speedy access to information that appears initially, and the news and business services of one kind of another in electronic form. Electronic delivery of materials has also made a major impact on information service operations providing increased flexibility, customization of services and opportunities for entirely new types of services in the widespread information transfer (Varalaksmi, 1992). The advancement in technology will continue to improve the effectiveness of the libraries and become indispensable for handling information between libraries and library patrons to librarians and vice versa (Kumba, 1996). There is already perceptible success of information technology through library automation and skilled manpower. However, the most arguably important factor is considered, as the motivation and attitudes of librarians to acquiesce information technology for their various work activities (Munshi, 1998).

Consequently, IT in libraries comprise all the electronic infrastructure and facilities employed by libraries to improve and provide efficient service. Such facilities, in broad term, consist of hardware, software and communication links between the service outlets of different libraries to facilitate the sharing of common resources; especially the library networks. There is a need to develop a scientific approach to information and for elucidation of its characteristic properties, leading to two principal changes in interpretation of the concept of information.

According to Ogunsola (2004) the pace of change brought by new technologies has had a significant effect on the way people live, work and play worldwide. This has been demonstrated in effective utilisation of technologies for research and routine library services.

Technological devices are regarded as central to the concepts of globalization. The internet has continued to have profound effects on the promotion of information sharing, especially in the academic world, making possible rapid transactions among businesses and supporting global collaboration among individuals and organizations. These technologies have the potential to develop "virtual campuses" and "virtual libraries" thus, increasing students' access and participation (Ogunsola, 2004). According to Daniel (2000) Nancy Schiller was one of the first writers to use the expression "virtual library" which she defined in 1992, simply as "libraries in which computer and telecommunications technologies make access to wide range of information resources possible". Today, the concept is referred to variously as "digital library", "electronic library", "community network", or simply "library without walls" (Ogunsola, 2004).

Relevance of Impact on Economic Development

The geographic, socio-cultural, economic and political ideologies of people living in Nigeria have unique features. However, community development is a participatory process that usually is appropriated by all components of people living in that community. Economic development encompasses using the state apparatus to enhance development. In contrary, and rightly captured by Oyelaran-Oyeyinka (2014): Nigeria is a country marked by social and economic paradoxes. It is rich in material wealth, but large segments of its people are poor, Nigeria's Gross Domestic Product (GDP) has grown remarkably but its citizen suffers poor quality of life, it is a major producer of crude oil, with huge reserves of mineral and agricultural resources, the base for industry, but Nigeria's manufacturing sector contributes little to its wealth. Nigeria is rich in human capital but it has little endogenous technological capacity. This country should boast very high living standards, but rather its infrastructure is poorly developed and inequality is proportionally higher. It has huge potential to absorb large skilled and knowledgeable workforce but unemployment among the youth is unacceptably high. The hope at independence was that of prosperity but it has long been replaced with befuddling despair that characterized fragile states unable to sustain payment of salaries to workers.

Recent studies describe society as a place in which information is intensely used to support economic, social, cultural and political life, it is a society with the abundant means of communication and of information processing, the society that is serving as a major part of the national income and ensuring contribution to the source of income for the majority of the population. Societal development can also be seen as the process by which people recreate themselves and their life circumstances to realize higher

Introduction

The flow of information is one of the major ways of strengthening the emerging democracy in Nigeria and to expand the opportunities to eliminate the regime of secrecy, which was the practice during the military era. Libraries in this 21st century have remained unchallenged, until recently, as providers of comprehensive information to meet a wide range of the information needs for the public. Libraries had been the sole gatekeepers of information (Pugh 2000). The fifth law of library science, according to Ranganathan (1963), is that the library is a growing organism. It is a growing organism in which printed and non-printed materials are systematically organised for the end users. According to Obajema (2002), a good library is indispensable if academic excellence is to be achieved.

The library is a service delivery institution, a custodian of knowledge and center of information dissemination. Traditionally, the library is a place where information materials are acquired, stored and retrieved for use, if well utilized could modify user's behaviour. Hence, encourages a more civilized and developed society. Knowledge preservation and dissemination have rapidly changed the way people seek and use information. The integration of ICT has changed the way information is generated, stored, organized and distributed and more importantly have become essential tools for teaching, learning and research. Modern electronic resources are procured for added value in service delivery for the furtherance of needs of users.

Challenges of Information Technology in Service Delivery

Adoption of ICTs in libraries depends largely on the roles played by librarians. The application of ICTs has led to significant changes in libraries, automated cataloguing, circulation, information retrieval, electronic document delivery, and CD-ROM databases, Ramzan (2004) observed that expert systems, wireless networks, virtual collections, interactive web interfaces, virtual reference services and personal web portals have brought changes since the beginning of the new millennium. There have been fast and significant changes in librarianship, where digital and electronic libraries complement and in some cases replace traditional libraries. Nigerian Library Schools have also successfully innovated the curriculum in this direction.

Technological change has posed some challenges to librarians who moved quickly to learn and adopt new information technologies (Remzan, 2004). ICT was introduced to perform some routine library functions and provide innovative users services. Librarians avail themselves on knowledge of

new technologies through continuing education programmes, professional training, and revisions to library school curricula, which helped them benefit from the new technologies equipped with appropriate hardware and software (Ramzan, 2004).

There was a report of gradual decline in research output in higher education which became noticeable in the late 1980s. This situation had adversely affected any meaningful development in every sector of the economy. Prior to this, the National Universities Commission (NUC) noted that, in terms of quality and quantity Nigerian research output was the best in sub-Sahara Africa. This achievement was recorded based on good research training. Motivation, and availability of equipment and good library facilities that encouraged service delivery. Unfortunately, this is no longer true of the nation's universities as quality and quantity of research have declined to all-time low and adversely discouraged greater output in every sector of the economy (Okebukola and Solowu 2001). Summarizing the factors that contributed to this decline. Okebukola (2002) identifies the following:

- * Lack of research skills in modern methods
- * Lack of equipment for carrying out state-of-the art research
- * Overloaded teaching and administration schedules which leave little time for research.
- * Difficulty in accessing research funds
- * Diminishing ability of seasoned and senior researchers to mentor junior researchers due to brain drain

These poor performances continue to generate much concern among lecturers, government and other stakeholders in the educational sector. The low productivity is likely caused by some factors such as inadequate infrastructural facilities, insufficient internet facilities, low level of information literacy and communication technology development, insufficient research training (local and international), obsolete material in the library and financial constraints, among others. These identified factors constitute a bottleneck for research breakthrough that may enhance societal growth. High levels productivity entails full commitment and this comes basically when the zeal and determination to succeed is embedded in individuals and the environment encourages such development.

Impact of Assessment of IT in Libraries

Information Technology (IT) is for better management and exchange of information, for more efficient communication and ultimately for the benefit of the people using IT (Bryson, 1990). Information is a dynamic and

everything that is significant in the history or development of the case. The case study method probes deeply, and intensively analyses interaction between the factors involved in the study.

The case study has unfortunately been used, as a 'catch all' category for anything that does not fall into experimental, survey, or historical methods. The term has also been used loosely as a synonym for ethnography, participant observation, naturalistic inquiry and fieldwork. This has occurred because case study is a method that can be usefully employed in most areas of education, from a historical case study of a particular school to a case study of a particular child in psychology, counseling, special education, social work, or a psychological process.

The case Study Report

The major components of the case study report are as follows:

- a) Purpose of the study; the problem that gave rise to it, as well as its philosophical orientation
- b) Methodology including the sampling decision, rich description of site/subject, transaction and processes, and data collection techniques
- c) Presentation of the data including the pattern, theme and interpretation
- d) Validation of findings/outcomes
- e) Conclusion.

Figures and other displays should only be used when really integral to the discussion. While verbatim quotation is often necessary, long, unedited extracts are rarely needed. At the other extreme, conceptual and philosophical discussion should not be divorced from some real flavouring of direct quotations and succinct descriptions.

Some Basic Research Terms

Variables: it would be meaningless to investigate things or construct that do not vary. The things that are observed are called variates or variables. Example of a variable includes intelligence, consumer attitudes and academic performance. These variable vary from individual to individual. There are independent and dependent variables. Independent variables are considered to be the presumed cause whose effect on the dependent variables are observed. The independent variables are those manipulated by the researchers in order to observe its effect on the dependent variable.

Subject: This refers to the individual elements in the population or sample under investigation. If the population is too large, the subjects are normally drawn to form a sample.

Population: Population in research refers to necessarily to people alone, but to all specified objects of research interest which possess the characteristics of research interest.

FUNDAMENTALS OF RESEARCH TOOLS/STATISTICS

Tools:

Topic Selection: Selection of a research topic for investigation is an important phase of the research process and should not be taken casually. Many research students find it difficult to cast the research topic properly largely because their knowledge of the research problem is limited, and so they are not ready to deal with the issue of topic selection decisively.

Students need to select research topic from an area in which they have interest and curiosity. Whether your instructor provides you with a list of topics on a specific subject matter or you have the freedom to select your own topic, begin with the question.

Characteristics of a Good Research Topic

The characteristics of a good research topic are as follows:

- a) A good research topic may be put in a question form or interrogative manner in which the researcher will have to provide an answer
- b) A good research problem should also generate questions concerning the relationship existing between sets of events or variables, for example, the effects of certain treatment. All the subsequent research activities will then be geared towards answering these questions of relationships and effects. A good problem should be specifically defined, with the variables to be correlated. Compared, or observed clearly delineated. Independent and dependent variables should be identified.
- c) If the research problem is a scientific one, then it should always contain two or more variables that could be tested empirically
- d) The problem should be stated clearly and unambiguously. The scope or "boundaries of the problem should be set so that the problem does not sound too ambitious. An undergraduate or postgraduate research should not aim at generalizing the findings to the whole nation because: the size of sample that will warrant such a generalization is more than a thesis can cope within the given time.

RESEARCH HYPOTHESIS

A hypothesis is a tentative prediction or a conjecture stated well in advance of observation (or actual collection of data), about what can be expected to

occur under stated or given conditions. The hypothesis is 'a starting point for investigation'. It is a statement of the expected relationship(s) between two or more variables in a research problem. These intelligent guesses, or hunches regarding the solution, which are yet to be subjected to some verification, can also be referred to as hypotheses.

The nature of a research hypothesis

The nature of a hypothesis is determined by the topic being considered and the envisaged depth of the research. Though both empiricists and rationalists resort to hypotheses, empirical tests are more fashionable in empirical school of scientific thought than in the rational school. Therefore, in examining the anatomy of hypotheses in the behavioural sciences, we are bound to identify with the empirical school rather than with the rational school. Behavioural science (unlike mathematics, physics and other physical sciences) is not an abstract science. It is good to note that not all studies need to formulate hypothesis. Somehow, some topics are better directed by research questions or research puzzles. In some research, the investigator simply wants to discover what he has no idea about whatsoever. In this case, there can be no hypothesis. This is a rare situation that is not highly probable. However, care must be taken to ensure that hypothesis formulation does not restrict the search for information so much that the research becomes blind to everything else outside the confines of the hypothesis.

Types of Research Hypothesis

The various types of Research hypothesis are as follows:

Simple hypothesis: A simple hypothesis can only present a relationship between two variables – a dependent (Y) variable and an independent variable (X)

Complex hypothesis: A complex hypothesis contains many X (independent) variables.

Pseudo-hypothesis: Pseudo-hypothesis is also called a one-variable hypothesis. A hypothesis in its basic form is made up of at least two variables unless it is a complex hypothesis. But sometimes one comes across a one-variable statement that looks like a hypothesis. This is also known as a pseudo-hypothesis and should not be mistaken for a true hypothesis.

Combined hypothesis: In this type of hypothesis, two simple structure hypotheses are combined to form one complex hypothesis. This structure could become more complicated if more groups and more independent X variables are added. This is a situation that calls for the use of the ANOVA statistical method.

Conjoint hypothesis: Conjoint hypothesis is a conditional hypothesis and is more complex than combined hypothesis. It states conditions under which the predicted relationship between the variables may hold. Students are advised to avoid this type of hypothesis if possible, because its analysis requires complex calculations and highly rigorous statistics.

Null hypothesis: The null hypothesis is central in research and is the hypothesis that is tested. It is stated in a negative assertion form by the use of the words 'No' or 'Not'. The null hypothesis is the H_0 and its alternate is H_1 (or H_A). The null hypothesis is an explanation that the difference between two groups (or variables) occurred by chance. A null hypothesis is, therefore, a negative statement that there is no actual (or significant) relationship between variable, but rather that any observed relationship that it found to exist happens by chance.

Every null hypothesis must have an alternative hypothesis, as a guide to the researcher to look for an alternative way of demonstrating the relationship between the relevant variable should the null hypothesis fail to be accepted. Each null hypothesis (H_0) specifies a numerical value for some parameter or difference between parameters (which is itself a parameter).

The statistical tests of the null hypothesis, H_0 , may suggest the rejection of the H_0 specifies a numerical value for some parameter or difference between parameters (which is itself a parameter).

The statistical tests of the null hypothesis, H_0 , may suggest the rejection of the H_0 at a particular level of significance and degree of freedom, as the case may be. The rejection of the null hypothesis signals an automatic acceptance or non-rejection of the alternative hypothesis, H_1 . This is because both hypotheses are complementary.

Characteristics of a Good Hypothesis

However, there are a number of general principles that have been found to characterize worthwhile hypotheses and should be used to judge the adequacy of the proposed hypothesis.

- * A hypothesis should be plausible and must have explanatory power.
- * A hypothesis must state the expected relationship between variables and must be related to the problem under consideration.
- * A hypothesis must be testable, which means that it relates variables that can be measured.
- * A hypothesis should be consistent with the existing body of knowledge. A hypothesis should not contradict well-established theories, principles and laws.
- * Hypotheses should be stated as simply and concisely as possible. A hypothesis should be simply worded involving a few concepts at a time. It must not be ambiguous, that means, it should be stated as clearly, objectively and concisely as possible.
- * It must be realizable within the framework of available data, instruments and method of analysis (research resources). It must agree with the preponderance of existing data.

Remember that the principle of parsimony is important in evaluating hypotheses. Hypothesis is essentially probabilistic in nature and it's never proved or disproved; it is only supported or not supported by evidence.

LITERATURE REVIEW

Usually coming immediately after the section on the general introduction and objective of the study is a section in which the investigator summarizes the results of previous studies carried out on the topic closely related to his research problem. Literature refers to the documented or recorded body of existing knowledge and information (in print, electronic or other medium) concerning a pre-defined knowledge subject, research problem, or information. Social research takes place within a broad context of a scientific knowledge base that gives substance, shape, direction, and meaning to the work of the researchers. The review of literatures an exercise in which a research searches for, identifies and critically examines knowledge that exists on a subject or problem under investigation. Such knowledge includes conceptual frameworks, empirical evidence, theories, hypothesis and conclusions of other scientific works related to the question under research.

RESEARCH DESIGN

There are many benefits for the researcher to produce an effective research design before starting off in earnest. A research design serves many functions among which are:

- * Perhaps the most important reason is to provide the framework to allow the researcher organize his time and resources. This, in essence, will be based on the goals of his research and his time frame.

- * Presentation of the design may be necessary to show research supervisor and, where applicable, funding agencies before ever the research proposal is approved.
- * It is a useful guide to the research in his efforts to generate data to test research hypotheses or answer research questions. It provides opportunity for the comparisons required by the hypotheses of the research.
- * It is useful in research proposals to demonstrate, diagrammatically, how the variables of the proposed study will be observed, controlled or manipulated.
- * It enables the research through his statistical analysis of the data to make significant interpretation of the results of the investigation.

Thus, besides being a necessary part of the research proposal and research report, research designs are often used to generate primary data because when we use design we are involved in a direct observation of events, phenomenon or an experiment.

Characteristics of a Good Research Design

The characteristics of a good research design are as follows:

- * The main use of a research design is in variance control.
- * To control error variance, we must randomize the sample subjects either through random selection of subjects, random assignment or subjects or groups, assignment of experimental treatments to groups or using a table of random numbers in the selection of sample subjects.
- * It must also be able to control independent variables that are extraneous to the study and may influence the dependent variables of the study.
- * A good research design should be able to produce data to answer the research questions and test research hypotheses.
- * A good research design should maintain both external and internal validity.

Validity of a Research Design

In social experiments a number of extraneous variables are present in the situation or are generated by the experimental design and procedures. These variables influence the results of the experiment in various ways. They introduce rival hypothesis that could account for experimental change not attributable to the system under consideration. It is important that the researcher gives attention to the validity of the design for the purpose of testing the hypotheses of any research. The two types of validity that should be given attention are internal and external validity.

CONCLUSION

In order to avoid Research supervision conflict, students would do well to acquiesce with the tools of research methodology and make sound effort to understand statistical methods for accurate data analyses. The unusual situation of "contracting" out crucial aspects of statistical analysis to willing vendors at some fee, without due understanding of the process, interpretation and possible strain in the data presentation and empirical claims sometimes leads to disastrous embarrassment and trouble with examiners. A display of conjugal interest in the topic being researched usually saves the day through unnecessarily tortuous research report jungle.

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