

## A Bibliometrics Study on E-Learning Literature of Nigeria

Yahya Ibrahim Harande<sup>1</sup>

Binta Faruk Ladan<sup>1</sup>

### Abstract

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*The purpose of the study is to explore on the growth and development of e-learning literature in Nigeria; 1964-2008. Bibliometrics study was conducted on the literature of e-learning in Nigeria. A number of journal articles were compiled from ERIC database; the terms, "e-learning" AND "Nigeria" were considered as the terms for the search on the database. Bradford's law of scattering was also applied to the data collected for the study. It was an attempt to undertake a study of e-learning (in Nigeria) which is considered a non- traditional learning system. This study will hopefully serve as an avenue for people to know the present condition and status of e-learning in Nigeria and a similar study in another country or subject area could be conducted using similar methods. A clue is also given for those who may want to conduct an in-depth bibliometrics study in the literature of e-learning. On the growth of the literature, it started very slowly from 1964 and gradually increasing through the period of the study until the year 2001 onwards when the literature experienced high speed and exponential growth. The study also found that, the literature of e-learning in Nigeria is in harmony with the Bradford's law of distribution and scattering of articles. Core journals were determined as a result of the spread of the literature. The findings generally show that the literature is receiving attention from the scholars and researchers in the country. It will assist in the selection of relevant materials for teachers, lecturers, researchers, libraries and Information centers.*

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**Keywords:** e-learning, literature, bibliometrics, periodicals, study, Nigeria.

### Introduction

The term e- learning entails learning in an electronically conducive environment. Users can have access to their lessons anywhere any time, so far the environment is electronically friendly. This method of learning encourages learning outside the four wall class rooms and disregard time frame for learning as it is the case in a classroom system. It is a form of learning that gives freedom of learning to groups and individuals. This system of learning provides opportunity for independent learning. Many people hold the view that e-learning is the bedrock of life long learning (LLL). The practice of e-learning is making a remarkable contribution towards the development, perfection, growth, refinement and effective practice of life long learning. The experiences realized in the cause of practicing e-learning exercises, strengthen the life long learning among many diverse communities across the globe.

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<sup>1</sup> Department of Library and Information Sciences, Faculty of Education, Bayero University, Nigeria.

In a document, ITM FAQs (2009) it has been said that, “e-learning can be done using an internet connection, a network, an intranet, or a storage disk. It uses a variety of media like audio, text, virtual environments, video and animation. E learning is a one-on-one learning method, it is self-paced and it has an experiential-learning format.”

The above statement shows that a user has freedom of learning a subject at the user’s own pace. The issue of missing a lesson does not arise, as the user can have access to the lessons at any point in time. Some people hold the believe that learning in this situation, is more of interactive than the traditional classroom approach. Opportunity for manipulation of learning materials and objects to suit users’ preference is quite available.

Flexibility of the system enhances learning processes of the users. The e-learning frame (2001) document summed up the whole concept of e-learning in four sentences. “E-learning is internet-enabled learning. Components can include content delivery in multiple formats, management of learning experience, and a network community of learners, content developers and experts. E-learning provides faster learning at reduced costs, increased access to learning and clear accountability for all participants in the learning process. In today’s fast-paced culture, organizations that implement e-learning provide their workforce with the ability to turn change in to advantage.”

However the purpose of this paper is to explore on the growth of e-learning as a new method of learning in Nigeria using Bibliometrics approach. To achieve this purpose, journals that published articles on e-learning in Nigeria will be identified and core productive journals will be determined from the identified journals. Bibliometrics as a research method concern about the nature and manner on which information is presented quantitatively. It is quite flexible and relevant method that could be utilized in evaluating, synthesizing and analyzing both printed and non-printed sources of information. Mattsson (2008) says that, “Bibliometrics uses mathematical and statistical methods to analyze and measure the output of scientific publications.” Bibliometrics is considered an emerging area of research in the discipline of library and information sciences and has practical approaches in determining the coverage and quality of journals.

Hazarika , Goswami , and Das (2003) opined that, “ It is used to identify the pattern of publication , authorship citation and coverage of journal papers in terms of geographic , subject , organization and other related parameters. In their study of authorship patterns, Perianes-Rodriguez, Omelda-Gomez and Moya-Anegon (2010) opined that,” Detection and identification of communities with factor analysis is a useful tool for experts in bibliometric and scientometric studies. Likewise the networks obtained are a useful framework for decision making.” The result could help in library resource management and planning strategies for documentation service to the user community of that particular literary discipline. Similarly, Glover and Bowen (2004) hold the view that, “There are many ways with which bibliometrics and citation tools can be used. Bibliometric analysis can be used to take macro-view of research output.”

The generality of the usage are centered towards multi-directional approaches and studies on documents and authors taking in to consideration the appropriate mathematical and statistical analysis to be applied. Lo (2010) in his study of genetic engineering research says that,” During the past several decades, plenty studies were done to show the productivities and research impact. There are quite an amount of studies which applied the methods adopted from bibliometrics while periodical articles were used for analyzing.” The result of the analyses done usually exhibits a lot of useful information that could be used in the proper handling of information sources and resources in a given library, information centre, organization or institution.

Franceschet, (2009) says that, “Today, bibliometrics is one of the rare truly interdisciplinary research fields. There are important links with philosophy, history and sociology of science, with policy and management studies and with mathematics, physics and computer science.”

To buttress on this important point, Wormell (2002) hold the view that, "Bibliometrics, from which informetrics derives, is traditionally associated with the quantitative measure of documentary materials and it embraces all studies which seek to quantify the process of written communication. Bibliometrics refers to a variety of regularities taken from different fields and exhibiting a variety of forms." Along this line Chang, Wu and Leu (2010), "Use bibliometrics techniques to analyze the status of technical development in the field of carbon nanotube field emission display CNT-FED. The different aspects of patenting activities are compared and the goal of this preliminary analysis is to understand the developmental path and current states of CNT-FED technology."

Generally, the application of bibliometrics methods can be seen conspicuously in so many disciplines and subject areas. For example, in the area of Thesaurus construction, (Lykke, 2001 and Schneider and Burlund, 2002) can be spotted. In the area of informetrics, (Bar-illan, 2000; Bjerneborn and Ingwersen, 2001.) In the aspect of collection development, mention could be made of (Shin; 2004; Starr, 2008; Cox, 2008; Kademani, et al 2005; Rousseau; 2002 and Zabid, 2008.) In the aspect of health information (Garcia-Localle, Pina & Royo 2011; Bowler, Hong & He, 2011; & Kim, 2010)

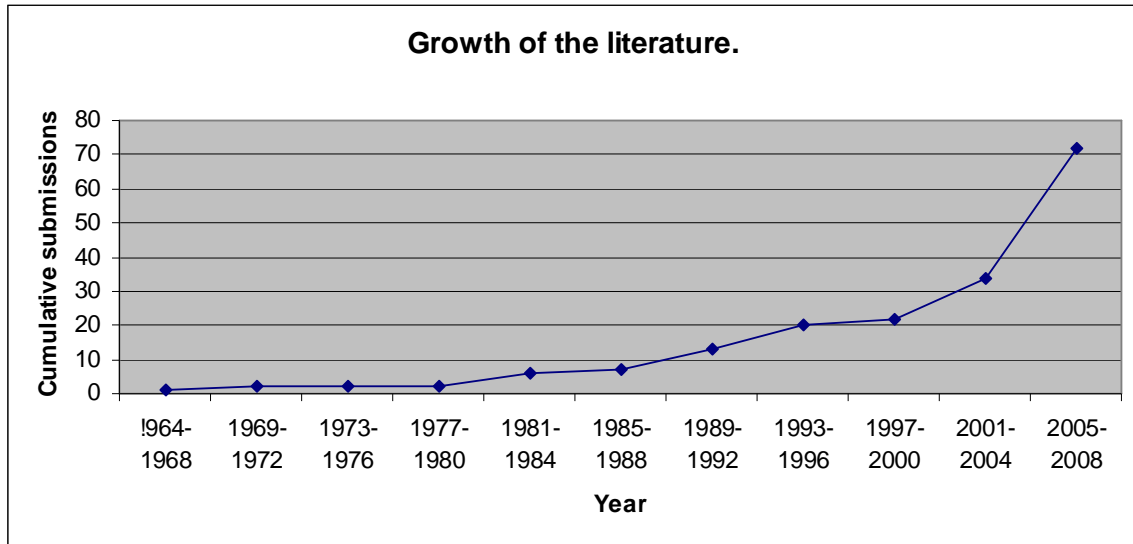
### **Methodology**

The data for the study was extracted from (ERIC) data base. The periodical articles used in the study were identified using searching approach; "e-learning" AND "Nigeria" as the basic search terms. A total number of seventy two (72) periodicals were realized as the result of the searching exercise performed. This number covered the period from 1964-2008. Bibliometrics analysis was therefore conducted on these (72) periodicals identified. The extent of the growth of the literature in the country was determined based on the analysis conducted. Table, 1 and figure 1 give information on the extent of the growth of the literature. Table 2 was also presented to further confirm the extent of the growth of the literature through the frequent appearance of some keywords that constitute "e-learning" through out the period of the study.

In order to find core journals in the subject of e-learning in Nigeria, Bradford-zipf distribution was applied to the collected data. Table 3 and figure 2 clearly shows the extent to which the Bradford's law was applied to the e-learning literature.

**Table 1: Distribution of periodical articles in the literature of e-learning**

Year	Submissions	Cumulative Submission	% articles	Cumulative %
1964-1968	1	1	1.38	1.38
1969-1972	1	2	1.38	2.77
1973-1976	0	2	0	2.77
1977-1980	0	2	0	2.77
1981-1984	3	5	4.16	6.94
1985-1988	1	6	1.38	8.33
1989-1992	6	12	8.33	16.66
1993-1996	7	19	9.72	26.38
1997-2000	2	21	2.77	29.16
2001-2004	23	44	31.94	61.11
2005-2008	28	72	38.88	100



**Table 2: Keywords used in the study and their frequency of usage**

Keywords used	Frequency of usage	Keywords used	Frequency of usage
Education	18	Teaching and learning	04
Teaching	14	Laboratory	03
Learning	12	University	03
Teachers	11	Development	03
School	08	Program	03
Language	06	Reading	03
Secondary	05	Communities	03
Perspectives	05	Diversity	03
Literacy	05	Distance	03
Culture	05	Training	03
Attitude	05	Adult	03
Perception	05	Combating	03
Students	05	Parent	03
English	04	Science	03
Quality	04		

### *Findings of the study*

#### **Growth of the literature**

The trend of growth of the literature could be traced as far back as the year 1964. The growth started slowly and maintained this slow trend until 1981, when the literature started experiencing speed in growth and development. This trend continued tremendously with significant speed. The literature experienced high speed and exponential growth from the year 2001 onwards. Table, 1 and Figure, 1 has clearly shown the trends of development of the literature during the period of the study. Four year interval was used for grouping the data of the study.

#### **Literature distribution using Bradford-zipf approach**

The pattern, in which the literature spreads, has clearly shown that there is significant scattering, growth and development of the literature in the country under study.

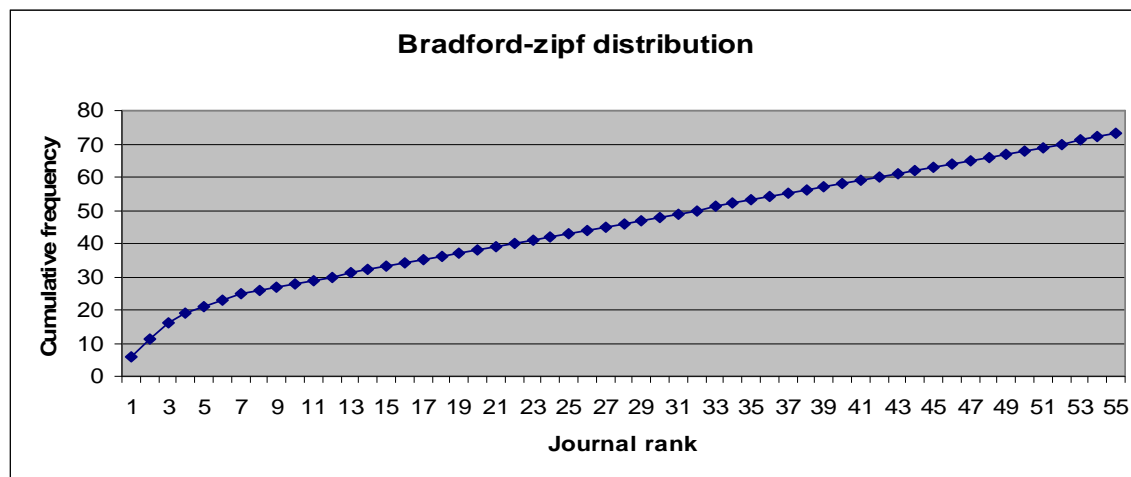
To further ascertain the extent of applicability of Bradford-zipf distribution, the journal rank numbers are plotted logarithmically, against the cumulative number of the articles. Traditionally, a classic Bradford-zipf records a lengthy straight line in the middle of the graph. And this literature has such a line in the middle of the graph plotted. This clearly shows that the literature of e-learning is in alliance and harmony with the Bradford-zipf distribution.

This shows that the literature of e-learning in Nigeria is scattered widely and is growing significantly in the country. Table 3 and Figure 2 clearly show the extent of scatter, spread, dispersion and development of the literature of e-learning in the country. Eight journals were found to be the core journals of the literature. Table 3 exhibits these eight journals and are ranked according to their contributions.

**Table 3: Ranked orders of the periodicals that produced 2 or more articles and constitute The core periodicals of the literature.**

Ranking	Submission	Cumulative submission	Journal Title
1	6	6	Australian journal of Adult learning
2	5	11	Commonwealth of Learning
3	4	15	International review of open and Distant learning.
4	3	18	Turkish online journal of Distance Education
5	3	21	Language and education
6	3	24	Language culture and curriculum
7	3	27	Journal of education for teaching
8	2	29	Turkish online journal of Educational technology.

**Figure 2: Bradford-zipf distribution of the literature of e-learning of Nigeria.**



### **Conclusion**

E-learning literature has recorded some significant growth in Nigeria. Based on the findings of the study, one can conclude that, the e-learning literature in Nigeria is receiving significant attention from the scholars and researchers. This is a clear manifestation that, in the near future more attention will be focused on it, more especially now that ICTs are making impact on various aspects of human endeavors in the developing worlds.

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