



**EDUCATIONAL THEORY  
AND PRACTICE  
ACROSS DISCIPLINES**  
(PROJECTING BEYOND THE 21<sup>ST</sup> CENTURY)



**Edited by**

Olawale A. Moronkola  
Clement O. O. Kolawole  
Babatunde O. Asagba  
Jonathan O. Osiki  
Adebola Jaiyeoba



**EDUCATIONAL THEORY AND PRACTICE  
ACROSS DISCIPLINES  
(PROJECTING BEYOND THE 21ST CENTURY)**

**Edited by  
Olawale A. Moronkola  
Clement O.O. Kolawole  
Babatunde O. Asagba  
Jonathan O. Osiki  
Adebola O. Jaiyeoba**

**Published by:**

Faculty of Education,  
University of Ibadan,  
Ibadan.

**ISBN:** 978-978-946-490-6

**Copyright (c):**

Faculty of Education,  
University of Ibadan,  
Ibadan.

First Published 2015

All Rights Reserved. No part of this book may be used or reproduced in any manner whatsoever without written permission from publisher, except in the case of brief quotations embodied in articles, speeches, essays and reviews.

**Printed by:**

Ibadan University Printery

## Contents

|                                                                                                                                                                                                                                                                                                                                        | Page |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>Foreword</b>                                                                                                                                                                                                                                                                                                                        | iii  |
| <b>Preface</b>                                                                                                                                                                                                                                                                                                                         | v    |
| <b>Educational Foundations and Management</b>                                                                                                                                                                                                                                                                                          |      |
| 1. Educational Theory and Practice through the Rear-View Mirror and Binocular, -*Moronkola, O.A. & **Babarinde, Kola, *Dept of Human Kinetics and Health Education, University of Ibadan, Ibadan. **Dept. of Teacher Education, University of Ibadan, Ibadan.                                                                          | 1    |
| 2. Identifying and Using Appropriate Theoretical Framework in Behavioural Sciences Research, -Osiki J. O., Dept of Guidance & Counselling, Faculty of Education, University of Ibadan, Ibadan.                                                                                                                                         | 12   |
| 3. Higher Education, Entrepreneurship and Social Development, -Ayodele-Bamisaie, O., Dept of Teacher Education, University of Ibadan, Ibadan.                                                                                                                                                                                          | 29   |
| 4. The Family as a Central Force for Sustaining Basic Educational Ideals Beyond 21 <sup>st</sup> Century, -Adejuwon, G. A., Dept of Psychology, Faculty of the Social Sciences, University of Ibadan, Ibadan.                                                                                                                          | 44   |
| 5. Imperatives for Successful Implementation of English Language Curriculum in Nigerian Secondary Schools, -*Kolawole, C. O. O., **Olatunji, S. O. & ***Akanbi, O. O., *Dept of Teacher Education, University of Ibadan, Ibadan. **Leads City University, Ibadan ***Command Day Secondary School, Leutmack Cantonment, Mokola, Ibadan. | 53   |

6. The Role of Agricultural Education and Training in the Enhancement of Food Security in Nigeria, - *Adeyemo, T.A. & Adeola O. Olajide, Dept of Agricultural Economics, University of Ibadan, Ibadan.* 71
  
7. The Role of Technology in Promoting Relevance Research Quality and Access to MSTE, -*Tella, A., Teacher Education Dept, Faculty of Education, University of Ibadan, Ibadan.* 87
  
8. Enhancing Equal Access to Quality Education for Children with Special Needs in Nigeria, -*Isaiah O. O., Dept of Special Education, University of Ibadan, Ibadan.* 112
  
9. Enhancing the quality of education in Nigeria through a human rights-based approach, -*Akinbola B. R., Dept of Public & International Law, Faculty of Law, University of Ibadan, Ibadan.* 122
  
10. Concepts, Issues and Perspectives on the Benefits of Conflicts for Organisational Goals and Achievements, -*Etadon, F. I. & Jimoh, A. M., University of Ibadan, Ibadan.* 149
  
11. Integrating Computer-Mediated Learning tools and Resources into Technical and Vocational Education and Training (TVET) for Educational Advancement in the 21<sup>st</sup> Century, -*Otunla, A. O., Research Fellow, Institute of Education, University of Ibadan, Ibadan.* 173

12. The Chequered History of Music Education in Nigeria, -Samuel, K., *Institute of African Studies, University of Ibadan, Ibadan.* 187

13. Education Reform in Kwara State: A Focus on Kwara State College of Education, Oro., -Ukoh, E. E., *Dept of Teacher Education, Faculty of Education, University of Ibadan, Ibadan.* 208

### **Guidance and Counselling**

14. Emerging Trends and Growth of Best Practices in Counselling Education in Nigeria for the 21<sup>st</sup> Century Practitioners, -Awoyemi A.E., *Dept of Guidance and Counselling, University of Ibadan, Ibadan.* 219

15. Emotional Intelligence as a Factor Of Employees' Job Performance in Nigerian Parastatals, -Nwogu, G.A & Kwarteng, Seth Amponsah, *\*Dept of Adult Education, University of Ibadan, Ibadan.\*\*Dept of Special Education, University of Ibadan, Ibadan.* 229

16. Therapeutic Process of Client-Centered Empathic Skill Application in Secondary School Counselling, -Egbochuku, E. O. & Iyamu, F. I., *University of Benin, Benin City, Edo State.* 245

### **Human Kinetics and Health Education**

17. A Field Report on the Impact of Millennium Village Project(MVP) on Water and Sanitation in Bonsaaso Millennium Villages Amansie-West District Ashanti Region, Ghana, -Oparah O.B., *Dept of Guidance & Counselling, University of Ibadan. Ibadan.* 259

18. Building Healthy Enterprising and Sustainable Communities: The Place of Environmental Health Education, -Onyezere J. O., & Ogundele B. O., \*Dept of Sports and Recreation Management, Lead City University, Ibadan \*\* Dept of Human Kinetics and Health Education, University of Ibadan 274
19. Impact of Global Economic Recession on Health and Education of Nigerian School-Age Children: Proffering Mitigation Strategies for Sustainable Education Development, -Odelola J.O., Dept of Human Kinetics and Health Education, University of Ibadan, Ibadan 292
20. Towards Individual and National Sustainable Development through Sports, -Oladipo, I. O., Dept of Human Kinetics and Health Education, University of Ibadan, Ibadan. 309
21. Periodontal Diseases: An Overview Beyond the 21<sup>st</sup> Century, -Dosumu, E.B., Dept of Periodontology & Community Dentistry, Faculty of Dentistry, College of Medicine, University of Ibadan, Ibadan. 329
22. Health and Safety of Young People: Looking Beyond the 21<sup>st</sup> Century, -Adio-Moses, R.O., Dept of Human Kinetics and Health Education, University of Ibadan, Ibadan. 345
23. Enhancing Quality of Life Through Participation in Sports, -Babatunde S.O., Dept of Human Kinetics and Health Education, University of Lagos, Akoka, Lagos State. 356

## Social Work

24. Empowering Workers for Retirement: Challenges for Industrial Social Workers, -Ajala, E.M., Dept of Social Work, Faculty of Education, University of Ibadan, Ibadan. 371
25. Social Mobilization and Community Participation in Development Programmes, -Olaleye, Y. L., Dept of Social Work, Faculty of Education, University of Ibadan, Ibadan. 389
26. Social Policy and Welfare Service Programmes: Implications for Poverty Reduction in Africa, -Adegoke, T.G. Dept of Social Work, Faculty of Education, University of Ibadan, Ibadan. 409
27. Social Work as an Agent of Rescue, -Adebowale, T. A., Dept of Social Work, Faculty of Education, University of Ibadan, Ibadan. 425
28. The Global Burden of Tuberculosis Epidemics: Implications for the Health Social Workers, -Ojedokun, I. M., Dept of Social Work, Faculty of Education, University of Ibadan, Ibadan. 438
29. The Roles and Responsibilities of Social Workers in the Primary School Setting in Nigeria, -Folaranmi, O. O., Dept of Social Work, Faculty of Education, University of Ibadan, Ibadan. 456
30. Management and Resolution of Conflicts in the Workplace, -Olajo, O.A & Akanbi, O. G., \*Federal College of Education (Special), Dept of Educational Psychology, Oyo. \*\*Dept of Guidance and Counselling University of Ibadan, Ibadan. 469

Ad

31

32

33

3

3

## **Adult Education**

31. Building a Learning Philosophy for Open and Distance Education Practice in Nigeria: Some Thoughts from Humanistic Principles, -Ojokheta, K.O. & Oladeji, S.O., Dept of Adult Education, University of Ibadan, Ibadan 485
32. Eleven Years of Implementation of Open and Distance Education: National Open University of Nigeria's Scorecard, -Ofole, N. M., Dept of Guidance and Counselling, Faculty of Education, University of Ibadan, Ibadan. 508
33. Developing Information Literacy Skills in African Teacher Training Education: Setting an Agenda for Policy Framework, - Oyewusi, F. O., Centre for Educational Media Resource Studies, Faculty of Education, University of Ibadan, Ibadan. 529
34. From Andragogy to Social Pedagogy: Moral Imperative of Adult Education Practice, -Omoriege, C.O. Dept. of Adult Education, University of Ibadan, Ibadan 551
35. Application of McGregor's Theory X and Theory Y to Adult and Non-Formal Education Participation, -Oladeji, S. O., Dept. of Adult Education, University of Ibadan, Ibadan 562

## **Library and Information Studies**

- 36 A Review of Organisation and Management of School Library Media Centre in Nigeria and France, -Egunjobi A. O., Centre for Educational Media Resource Studies, Faculty of Education, University of Ibadan, Ibadan 573

37. Delivering Library Services in the 21st Century: Online Search Strategies and Techniques, -Fagbola, O. O., *Ibadan Study Centre Library, National Open University of Nigeria* 580

38. Achieving Intellectual Development through Reading Skills and Habit Formation, *Alegbeleye, M.O. Centre for Educational Media Resource Studies, Faculty of Education, University of Ibadan, Ibadan* 621

39. Basic Archival Principles and Book Preservation in Nigerian Libraries, -Abioye, A., *Dept. of Library, Archival and Information Studies, University of Ibadan, Ibadan.* 637

### **Special Education**

40. Unravelling the Mysteries of Collaborative Strategic Reading (CSR): A four-in-One Comprehension Strategy for Students with Learning Disabilities, -Lazarus, K. U., *Dept. of Special Education, University of Ibadan, Ibadan.* 653

41. Gifted and Talented Education and Procedures for its Promotion in the Community, -Adelodun, G.A., *Dept. of Special Education, University of Ibadan, Ibadan.* 668

42. Effective Management of Students with Auditory Processing Disorders (APD) in the Classroom Setting: Essential Hints for the Teachers and School Administrators, -Osisanya A. & Adewunmi A., *Dept. of Special Education, University of Ibadan, Ibadan.* 683

43. Using a Training Module to Change Attitudes of Students toward Capabilities of Persons with Disabilities, -Seth Amponsah Kwarteng & Prosper Deku, \*Dept of Basic Education, University of Cape Coast, Cape Coast, \*\*Dept of Educational Foundations, University of Cape Coast, Cape Coast. 706
44. Disability, Poverty and Self-Reliance: Repositioning Graduates with Special Needs for Economic Empowerment in Nigeria, -Fakolade, O. A. & Emmanuel, K.M., Dept. of Special Education, University of Ibadan, Ibadan. 722
45. Improving the Quality of Life of Adolescents with Hearing Impairment through Entrepreneurship Education, -Oyewumi, A. & Adigun, O. T., Dept. of Special Education, University of Ibadan, Ibadan. 738
46. Millennium Development Goals and Persons with Intellectual Disability: Harnessing Effective Potentials of Complementary and Alternative Medicine (CAM), -Oyundoyin J.O. & Oyefeso, E., Dept. of Special Education, University of Ibadan, Ibadan. 753

---

## Delivering Library Services in the 21st Century: Online Search Strategies and Techniques

---

# 37

Fagbola, O. O.

---

### Abstract

*The focus of this chapter is on new dimensions of library services to users via online search strategies and techniques. The author provided information on the online system, categories of information on the web with their unique characteristics, internet search tools and evaluation options. Also, discussed were web evaluation and citation management tools.*

### Introduction

Libraries are service organisations and the society's repositories for knowledge (Witten, Bainbridge and Nichols, 2010). It forms an integral part of education and means through which individuals, organisations and societies use to provide large numbers of people an unhindered access to substantial information and or level of knowledge. A library is a collection of information sources, resources and services organised for use and maintained by a public body, an *institution* or a private individual (Igbeka, 2010). Traditionally, libraries are seen as a collection of books used for reading or study, or the building or rooms in which such collections are kept. However, libraries have since emerged as a far-reaching body of information resources and services that do not even require a building. A library is a place where print, digital and other non-print materials are collected, organised and made available for access and use. The library may be made of walls, where these materials are stored; or virtual, where all the information

ner  
20

ou  
tec  
ma  
dif  
tel  
inf  
ex  
as  
an  
to

co  
th  
ek  
ek  
co  
lib  
re  
re  
20  
tri  
ca  
Te  
cr  
th  
Li  
or  
tc  
w  
ac  
tc  
u:  
r

needed is stored on a computer with internet facilities (Aina, 2013).

The Web and wireless technologies have indelibly altered our lives (Tensen, 2013). Rapid developments in the computer technologies, telecommunications and other technologies have made it possible to store and retrieve information in many different forms and from any place with a computer and a telephone (modem) connection. Libraries are repositories of information and more recently, libraries are understood as extending beyond the physical walls of a building, to serving as a gateway for accessing information, information materials and tremendous amounts of knowledge with a variety of digital tools.

Digital, electronic or virtual library refers to the vast collections of information to which people gain access over the internet, cable television, or some other types of remote electronic connections. Digital libraries are characterised by an electronic stock of information which can be accessed via computers, and are extension and augmentations of physical libraries in digital forms; provides opportunities to access and retrieve information that is often inaccessible for a variety of reasons in developing countries (Park, Roman, Lee and Chung, 2009). With the development of digital libraries, users access traditional library materials through the online public access catalog (OPAC) to locate the information they want.

Technology has changed and has allowed ever new ways of creating, storing, organising and providing information, hence the public expectation of the role of libraries has increased. Libraries have responded by developing more sophisticated online catalogs (library management system) that allow users to find out whether or not a book has been checked out and what other libraries have it. In traditional libraries (special, academic, public, national, private or school) users have access to a catalog that will help locate a book. In digital libraries, users have access to catalogs (OPAC) to find traditional library materials. Much of the information, for example, on the internet

cannot be found through one commonly accepted form of identification.

The deployment of information and communication technology in librarianship has made librarians to become expert in finding information from online and CD-ROM databases. Increasingly, librarians have assumed the role of educator to teach their users how to find information both in the library and over electronic networks. Although libraries have changed significantly over the course of history but their cultural role of acquiring or providing access to books, periodicals and other media that meet the educational, recreational and information needs of their users has not changed. Libraries continue to keep the business, legal, historical and religious records of a civilization. They are the place where a toddler can hear his first story and scholars can carry out research activities.

Basically, libraries are usually classified as: academic, research or special, school, private, national and public library based on their clientele.

### **The Online System**

Library operations are online based. With a portal, the library provides a customizable electronic gateway into a wide variety of resources and searching tools that can be linked to delivery systems and online services (Rubin, 2010). According to the Encyclopaedia Britannica, Student and Home Edition (2010), an online system is any electronic interactive system that delivers information to users via telephone lines to personal computers or via cables to terminals. When conducting online searches, an effective online system must always be in place. This must be connected by computer to one or more other computers or networks, as through a commercial electronic information service or the internet. The totality of many web pages that resides on servers all over the world which makes it possible for a single computer to find or go to all web pages directly is referred to as the internet. To gather information,

the user is merely searching the search tool's database or collection of websites, which is still a relatively small subset of the world wide web.

The World Wide Web (WWW) otherwise referred to as the 'Information Superhighway' is an inter-connection of millions of web sites and web pages that belongs to different organisations and provides different types of digital information contents and services (Salako and Tihamiyu, 2007). With the development of the WWW powered by the internet, came a new array of documentary and pictorial communications, and also continuous stream of innovative applications in electronic information resources such as digital libraries, electronic databases, e-Books, e-Journals, e- newspapers amongst other new innovations. Because the web is the single largest information market, where diverse people's information needs are met, it has become the first point of call for information seekers the world over regardless of what the information being sought after are used for. The Web has greatly expanded our choices for conducting research and accessing information; it allows access to information that may not be available through the library (Tensen, 2013). With the click of a mouse, the WWW helps you connect and communicate with countless potential sources for your investigation.

On the Web, there are a few excellent tools (specialised search engines and subject directories (guides) that attempt to apply certain criteria such as selectivity, evaluation, and description to websites (Tensen, 2013). These tools provide access to a limited collection of websites that have been appraised and judged current, credible and relevant because they were created by reputable authors/organisations.

### **Categories of Information on the Web**

The Web is a massive collection of pages or information resources stored on millions of computers across the world, which are linked by the internet (Chowdhury and Chowdhury, 2007). The Web makes it possible to circulate more information

to more people than ever before. The categories of information on the web include:

i. *The Free, Visible Web*: These include general web directories, search engines and search directories. They are publicly mounted web pages indexed by search engines. To find information from this category, a good search engine or directory is advised.

ii. *The Free, Invisible Web*: These are contents of sites that provide their article or information free to users, but the content may be accessible only by going directly to the site. Search engines cannot index it. To find information, you must go through the appropriate databases. Examples include some magazines, newspapers, reference works, legal, medical, and financial databases.

iii. *Paid Databases Over the Web*: This includes commercial databases that libraries subscribe to. It contains scholarly journals, newspapers, court cases, and so on. Examples include Ebscohost, LexisNexis, JSTOR etc. To find information from paid databases, you must have access to such database through a given password.

Some of the unique characteristics of web resources are:

i. *Primary sources*: These are original materials on which research is based. They are usually the first formal appearance of results in physical, print or electronic format. Primary sources present original thinking, report a discovery or share information. Examples include web sites, list serve, and articles published in peer reviewed journals.

ii. *Specialised directories*: These are collections of selected internet resources (collections of links). They are well organised and are usually dedicated to specific information on a given area, example include education, medicine, etc. Specialised directories assist users and refer professionals to find information on specific interest. They provide up-to-date

information on any given issue example; include Infomine, Ipl2.

iii. *Databases*: These are programs built to store and manage information which are collections of records stored in a computer in a systematic way. Database is a method of organising information and its use involves a lot of searches. It comes in two basic varieties: Bibliographic database which is simply the electronic version of a bibliographic index. That is, it gives an excellent sense of what a source is like and full-text databases (contains the actual document) which are collections of previously published periodical articles that have been made available in a digital format.

iv. *Statistical information*: These usually contain a table that provides a summary of key economic and social indicators of a given country.

v. *e-Books*: These are entire volumes published in digital forms and are accessible via specialised databases on the web.

In addition, characteristics of web resources include policy papers, reports, largely unorganised, commercial information, varying quality, different educational sites, research, reference collections, and collections of personal materials

### **Online Search**

Conducting an online search entails the use of search tools. A variety of tools are available and each tool does things a little differently, with different purpose, different coverage and search features (Hock, 2013).

### **Internet Search Tools**

Search tool is a generic term that includes all types of internet search tools. These include search engines, search directories, metasearch engines (metasearchers) and invisible web. The search tools provide a gateway not only to links but also to a number of other information resources (Hock, 2013). Basically, there are three (3) main categories of search tools:

i. Search Engines: These are computer programs used to find answers to queries in a collection of information. Search engine services allow the searcher to search virtually every word from several billions of web pages. They also allow the use of sophisticated techniques so as to enable the searcher focus effectively on the search terms (Hock, 2013). Search engines are used for exhaustive web search. It might be a library catalog, (OPAC), which serves as a pointer to all the holdings in a fully computerised library and managed by a Library Management Software System. Example include Liberty 3, Alice for Windows; or a database (JSTOR, HINARI).

A search engine consists of the interface used to type in a query, an index of websites that the query is matched with and a software programme (called spider) that goes out on the web and gets new sites for the index. Examples of search engines include Infoseek, AltaVista, Google (most popular), Yahoo! Search, Ask.com, etc. Search engines are great for obtaining certain types of information (Tensen, 2013). The pages included in web search engines are not placed in categories and there is no direct human selectivity in determining whether a web page is included in the search engine's database.

Google is the most popular web search engine and an highly effective tool for finding answers to everyday questions. It has one of the largest databases of web pages, including many other types of web documents (blog posts, wiki pages, group discussion threads and document formats (examples: PDFs, Word or Excel documents, Powerpoint). Despite the presence of all these formats, Google's popularity ranking often places worthwhile pages near the top of search results. However, when conducting a search, Google alone is not always sufficient, because it is not everything on the web that is fully searchable in Google. Studies have shown that more than 80 percent of the pages in a major search engine's database exist only in that database (www.lib.berkeley.edu, 2010). For this reason, getting a "second opinion" can be worth your time.

For this purpose, Yahoo! Search or Exalead is recommended. Many search engines are now becoming reference sites which contain news headlines, weather information, stock market information, free software, picture indexes and other kinds of handy information.

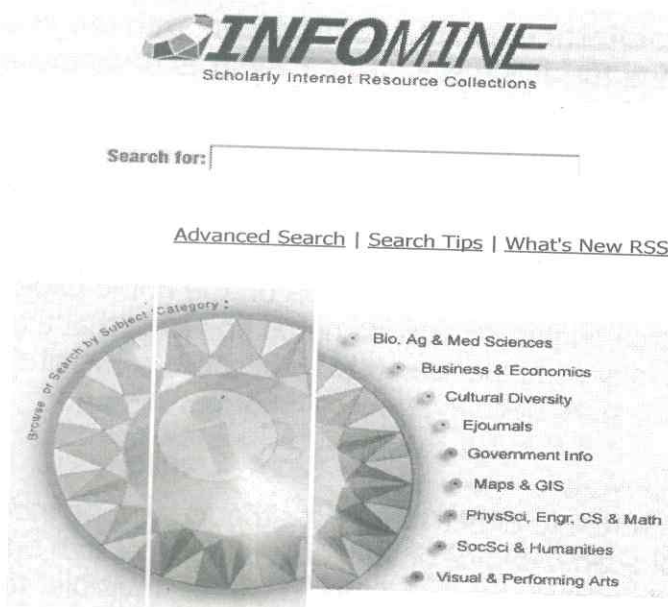
Search engines can be global as in the case of Google or AltaVista (reads pages from all over the world in many languages). These engines may index more than a billion pages. A search engine can be regional (limited to a given geographical area, that is sites from one country as Australia); targeted or specific for a particular discipline (search engines that limits themselves to one subject such as biography, medicine; reference (provides information from a set of reference works, an example is the Encyclopedia Britannica. Many web pages are excluded from most search engines by policy because the contents of most of the searchable databases mounted on the web, such as library catalogs and article databases, are not accessible by search engine spiders. All these are materials referred to as the "Invisible Web" (what you don't see in search engine results). Some examples of general search tool are Bing ([www.bing.com](http://www.bing.com)), Exalead ([www.exalead.com](http://www.exalead.com)), Gigablast ([www.gigablast.com](http://www.gigablast.com)), Google ([www.google.com](http://www.google.com)), Yahoo! ([search.yahoo.co.uk](http://search.yahoo.co.uk)), and DocJax.com - (The Document Search Engine: [www.docjax.com](http://www.docjax.com)). Some examples of multiple search tools are AllPlus ([www.allplus.com](http://www.allplus.com)), BrowsysFinder ([www.browsys.com/finder](http://www.browsys.com/finder)) and Clusty ([www.clusty.com](http://www.clusty.com)).

## ii. Search Directories

These are internet research tools on the World Wide Web. Search directories organises internet resources by subject headings and sub-headings. They are designed with academic research in mind and the Web pages cataloged in them are credible. Like search engines, search directories usually compile databases of websites. They are categorised lists of sites picked out by human editors and are much smaller than those of search engines. The fact that the sites are hand-picked often

means that high quality sites or articles can be found in results outcome of searches conducted. Search directories are used when browsing for information easily classified and searched by browsing e.g. University and College in Georgia. There are thousands of specialised directories on practically every subject. Common examples include Infomine (<http://infomine.ucr.edu>) compiled and maintained by academic librarians from a number of distinguished universities and colleges. It is organised according to university-level subject/disciplines), Yahoo! Directory, Google Directory, *IPI2* (merger of Librarians' Internet Index and the Internet Public Library (<http://www.ipl.org>)) one of the largest and best guides on the Web. The *IPI2* indexes thousands and thousands of sites was created and maintained by librarians and librarian students. Look Smart, Snap etc. are online search tools that use human experts to compile and categorise websites, so you know that any pages you locate using these directories have been authenticated and evaluated. Given the chaotic nature of the Web, the assistance provided by a search directory (subject guide) in limiting your search hits is invaluable (Tensen, 2013). However, the fact that they are limited in scope and compiled with a great deal of human evaluation constitutes their greatest liabilities. Search directories are only as good as their human evaluators and compilers. However, despite these limitations, they are an exceptional help in safely navigating the uncharted waters of the Web (Tensen, 2013). A typical search directory home page is as shown in Figure 1 below:

Fig 1: INFOMINE (A Search Directory) Advanced Search Screen



Source: © 1994- INFOMINE, The Regents of the University of California

### iii. Metasearch Engine

This is a *search engine* that queries other search engines and then combines the results that are received from all. In effect, the user is not using just one search engine but a combination of many search engines at once to optimize Web searching. A search tool sends user's request to several other search engines and databases aggregates the results into a single list or displays them according to their source. In a metasearch engine, after keywords have been submitted in the search box, searches are then transmitted simultaneously to several individual search engines, search directories and their databases of web pages. Within a few seconds, results from all the search engines queried are returned.

Metasearch engines do not own a database of web pages; instead, search terms are forwarded to the databases maintained by search engine companies. However, despite the

benefits of using metasearch engines to browse the internet, in that it explores more databases broadly, to get the most precise result the use of individual search engine is recommended for online searching. Examples of metasearch engines include Dogpile, MetaCrawler, Yippy, etc. For a starter, the use of metasearch engines is not advised as a primary search tool. Some common techniques will work in any search engine. However, in this very competitive industry, search engines also strive to offer unique features. When in doubt, look for "help", "FAQ", or "about" links on the home page of a desired search engine. It must be noted however, that a given search site may combine search tools because some sites are in a constant state of change, merging or partnering.

#### iv. Invisible Web

This refers to either *web pages* that cannot be *indexed* by a typical *search engine* or web pages that a search engine purposely does not index, rendering the data "invisible" to the general user (www.webopedia, 2014). Invisible web traditionally refers to the information available through gateways or search interfaces that is not accessible by the search engines's 'robots' (that is, invisible to search engines). These resources are often referred to also as the 'Deep Web', the 'hidden web', deepnet, 'dark web'. It contains a variety of content, databases of articles, data, statistics, government documents (Hock, 2013). The invisible Web constitutes a huge part of the internet content visited regularly by surfers without realizing it; it is often the dynamic pages within database driven sites. The main page of a Deep Web site is usually easy to find and is covered by search engines. It is the rest of the site (web pages and other contents within the site) that may be hidden (Hock, 2013).

There are valuable resources on the web that search engines may not be able to access, but if the Universal Resource Locator (URL) is known to the searcher, easy access is guaranteed.

The  
que:  
conf  
by s  
Bibl  
rep

fin  
in ;  
you  
typ  
mc  
as  
sc  
co  
sc  
ca  
er

W  
S  
tl  
b  
e  
r  
i

The URLs' can often be identified by symbols such as the (?) question marks. The invisible web is the World Wide Web content that is not part of the surface web, which is indexed by standard search engines. Examples include Library catalogs, Bibliographic and Alphanumeric databases or even some repositories of documents:

On the other hand, the "visible web" is what you can find using general web 'search engines'. It is also what you see in almost all 'subject directories'. The "invisible web" is what you cannot find using these types of tools. For example, these types of pages used to be invisible but can now be found in most search engine results: pages in non-html formats such as PDF, Word, Excel, Powerpoint, now converted into html; script-based pages, whose URLs contain a ? or other script coding; pages generated dynamically by other types of database software such as active server pages, cold fusion, etc. These can be indexed if there is a stable URL somewhere that search engine crawlers can find.

Why isn't everything visible?

Some web pages, websites are invisible to searchers because the web content are not part of the surface web which is indexed by standard search engines. There are still some hurdles search engine crawlers cannot leap. Some examples of materials that remain hidden from general search engines include:

- i. The contents of searchable databases. For instance, when a search is being conducted on a library catalog, article database, statistical database and so on, the results are generated "on the fly" in answer to your search because the crawler programs cannot type or think, they cannot enter passwords on a login screen or keywords in a search box. Thus, these databases must be searched separately. Examples include Emerald, LexisNexis, JSTOR, Ebscohost.

- ii. A special case, for example Google Scholar (Web version of a bibliographic database), is a specialised search engine that is best understood and a part of the public or visible web. It contains citations to journal articles and other publications, with links to publishers or other sources where one can try to access the full text of the items. It is available to anyone on the Web, and includes digital versions of journal articles, theses, books, and selected Web pages (Tensen, 2013). Results in Google Scholar are only a small fraction of all the scholarly publications that exist online. There are much more including most of the full text databases (available through article databases that are part of the invisible web). Google Scholar has an agreement with publishers of academic journals as well as some online subscription database (Questia). Google Scholar indexes full-text digitized versions of a vast number of peer-reviewed, scholarly sources and its method of reporting results is similar to library records (providing all of the necessary bibliographic information as well as an abstract). It is a terrific tool for academic research because it is stocked with scholarly sources (Tensen, 2013).
- iii. Excluded Pages. Some search engine companies usually exclude some types of pages by policy, so as to avoid cluttering their databases with unwanted content.
- iv. Dynamically generated pages of little value beyond single use. Think of the billions of possible web pages generated by searches for books in library catalogs, public record databases, etc. Each of these is created in response to a specific need. Search engines do not want all these pages in their web databases, since they generally are not of broad interest.
- v. Pages deliberately excluded by their owners. A web page creator who does not want his/her page showing up in search engines can insert special "meta tags" that

Ho

Se  
fo  
dir  
In  
to  
an  
in  
we  
Ge  
su  
lis  
da

Se

se  
in  
fo  
it  
21

C

to  
e  
d  
e

will not display on the screen, but will cause most search engines' crawlers to avoid the page.

### How to Find the Invisible Web

Simply think 'databases' and keep your eyes open. Searchable databases containing invisible web pages can be found in the course of routine searching in most general web directories. Of particular value in academic research are: ipl2, Infomine . Also Google and other search engines can be used to locate searchable databases by searching a subject term and the word 'database'. If a database used the word 'database' in its own pages, such is likely to be found by Google. The word 'database' is also useful when searching for a topic in the Google directory or the Yahoo! directory, because sometimes such term(s) are used to describe searchable databases in their listings. Examples may include 'plane crash database', 'languages database, toxic chemicals database.

### Search Strategies

Search strategy is a systematic plan for conducting a search, i.e comprehensive plan for finding information. This includes defining the information need and determining the form in which it is needed, if it exists, where it is located, how it is organized, and how to retrieve it (www.education.com, 2013).

### Creating a Search Strategy

Creating effective search statements entails your ability to turn your research questions or topic statements into an effective search statement that can be used to search electronic databases or web search engines. Creating a search strategy entails the following:

- i. Asking questions
- ii. Browsing your topic, use subject directory, e.g., Yahoo

- iii. Looking for a specific piece of information, use Google or Alta vista
- iv. To retrieve everything you can on a subject, use a metasearch engine, e.g., Dogpile

Also, as part of your web search strategy, spend a little time looking for databases in your field or topic of study or research. The contents of these may not be freely available - libraries and organisations buy the rights for their authorized users to view the contents. If they appear free, it's because you are somehow authorized to search and read the contents (library card holder, company employee, etc.).

#### Basic Search Strategies Steps

There is no one right or wrong way to conduct a web search, hence there can never be a list of definitive steps or one specific strategy to follow when conducting every web search. However, it is useful to think in terms of a toolbox of strategies and select whichever tool or combination of tools that may seem appropriate for the specific search at hand. Some basic approaches for searching the web include the following:

- i. Analyze your topic to decide where to begin, i.e., does your topic have distinctive word or phrase. Make sure you fully understand your question/topic.
- ii. Identify keywords - use word(s) that are related to the type of information you seek (i.e., major concepts) and phrase. These indicate what the project is really about. Provide initial search terms for finding information.
- iii. Identify synonyms and related terms (thesaurus); synonyms include foreign terms or variant spellings, technical terms, jargons, for example, testing, measurement, assessment, evaluation.
- iv. Search in cycles. That is, view your search from different angles and approaches. Try a variety of search engines,

to indicate many characters e.g., comput\* = compute, computation, computable, computer; question mark (?) is used to indicate single character, e.g., organi?ation = organisation, organization.

- vi. Also, Boolean logic can be used to combine search terms so that the most relevant results are returned. If you type in a keyword without specifying an operator, the default will be used. Broaden or narrow your search with operators. Keep in mind that different search tools (engines) use different operators. Many search engines assume that you're using the word AND between each word even if you don't enter it. Explore the following chart for more ideas:

| Operator              | Description                                        | Example                    |
|-----------------------|----------------------------------------------------|----------------------------|
|                       | use a keyword or idea, be specific                 | Consumer product chemistry |
|                       | use a phrase, question, or string of ideas.        | "Consumer product"         |
|                       | use capitals only for proper nouns. Avoid plurals. | Nigeria                    |
| AND, +, &             | include both words                                 | information AND knowledge  |
| OR,                   | include either word                                | Ice OR sand AND sculpture  |
| NOT, -                | exclude this word                                  | Ice NOT sand AND sculpture |
| AND NOT, !            | all, but this word                                 | weed AND NOT marijuana     |
| NEAR, ~               | similar to this word, good for misspellings        | NEAR sculpture             |
| *                     | wildcard, include plurals and close matches        | comp*                      |
| " "                   | looks for things in quotations                     | "statue of liberty"        |
| use lowercase letters | upper case can limit your search                   | "statue of liberty"        |
| title, t:             | to find the word in the title of the page          | title: polymer chemistry   |
| url, u:               | the word in URL                                    | u: eduscapes               |

Source: [www.biopoint.com](http://www.biopoint.com) (July, 2010)

- i. Start searching. The nature of your question will determine how to proceed with the initial search.
- ii. Evaluate your search result. As search results are retrieved, search statements can be modified to expand retrieval by including broader terms and related terms, or to reduce retrieval by the substitution of narrow terms. Always use specific phrase to narrow down to exactly what you need.

- iii. Save searches / create e-mail alert. Once you are okay with the search result, you save for future use or create alert.
- iv. Note reference(s). Always note all reference(s) in full as they appear even if you are not sure how useful they might be. Take note of publication details in case of photocopy (journal title, issue and volume number) from which it was taken, in case you wish to cite it. It can be very difficult to check back later.

### **Quick Tips for Searching Information Online**

- i. Use several search tools, e.g., About.com, AltaVista, Google.
- ii. Read the search tips or help information at each search engine home page.
- iii. Be specific, e.g., "ancient china" instead of china.
- iv. Use the advanced search tool on the search engine for a greater range of options. It helps to make search more specific.
- v. Use the plus (+) and minus (-) signs in front of words to force their inclusion and/or exclusion in searches, e.g., + hamlet - reviews.
- vi. Use double quotation marks (" ") around phrases to ensure they are searched exactly as it is, with the words side by side in the same order, e.g., "global warming", "air quality".
- vii. Type keywords and phrases in lower case to find both lower and upper version, for example: 'president' will retrieves both 'president and President'. For keyword search, use several words – insomnia, sleeplessness.

- viii. Think before you Google. For instance, are evaluated subject listings and directories more appropriate? How about free and priced databases? Try specialist tools such as Scirus, TechXtra. Use a range of search tools for example, Google, Yahoo, Bing.

In addition to the tips listed above, some other quick tips include repeating the most important term or terms in your search one or more times; change the order of the words in your search strategy to see a different set of results as search engines tend to 'think' in phrases. For example, in Google click on the show options at the top of your results lists for additional ways of narrowing down your search; also, back up to find out where you are; guess a location URL – <http://www.weather.com>; and finally, select the wheat from the chaff by thinking about what you want - facts, opinions, statistics, and personal examples.

### **Guides to Choosing a Starting Place**

- i. For broad subjects such as information processing, information technology, make use of Encyclopedia or a reference sites.
- ii. For general subject areas such as business, medicine, government documents, law - make use of targeted search engine.
- iii. For a well-known specific subject, e.g., education - use a subject directory such as Infomine.
- iv. For information on very specific and unusual subject – then use a general search engine such as Google, Yahoo.
- v. For research paper –you can use a combination of several search engines, directories and other search tools.

Conducting a search using a search engine means you are looking for an exact word. The acronym 'FOREST' and 'LOG' said it all:

FO – Forms or varieties of the word e.g. "validity of testing".

Use wildcards to cover most forms – validity of test\*

RE – Related Terms to testing is measurement, assessment, judgment, performance, criteria, evaluation.

ST – Synonymous Terms, i.e., other words that can be used in place of the word "test" includes examinations, assessment, quiz, midterm; Apple growing or fruit tree farming or fruit orchards.

LOG – 'Ladder of Generalization': The higher on the ladder, the more general and comprehensive the term, while the lower on the ladder, the more specific the term, i.e., general to specific. When developing a set of search terms and while searching with them, if desired result(s) are not returned, it is advisable to move up or down the ladder of generalization while trying to generate some more terms, e.g., measurement, assessment, testing, performance test.

### **Points to Remember When Conducting a Search Online**

When conducting an online search, always remember that each search tool has its own set of search strategies. Be sure to read the 'search help' or 'advanced help' section of the website to be sure you're getting the most out of the resource. For example, some websites use quotation marks to cluster related words while some websites use 'and/or' while others use '+/-' to indicate a Boolean search. Most search tools also have an option to search for a particular type of file such as a web page, image, sound, or video.

Carrying out an effective search exercise is tasking, but with a few simple tools and a bit of preparation you will find that getting the information you really need isn't too difficult at all. The process of planning a search strategy will help clarify your thinking about your topic, and ensure that you look for information appropriate to your task in the right place.

Hence, it is advisable to take time to plan before you begin, this will save you a lot of time and stress once you start exploring the resources on offer.

### **Online Search Technique**

The perfect page, that is the exact page(s) that contains the information you need, is out there online. Getting to such a page is just some few strokes away by engaging in an effective and comprehensive online searching. Online search technique is the systematic procedure by which a complex task is accomplished. Online searches can be done using : Basic Search Strategy and Advanced Search Strategy.

#### **i. Basic Search Strategy**

The basic search strategy is an ideal way to start an online search. This can be done using any of the search engines e.g. Google, Yahoo search directories, e.g. ipl2 or metasearch engine e.g. Dogpile. The steps involved when conducting a basic search are: Enter the URL at the address bar; the search template will come up and then type in your query (search term/keyword), e.g. "Global warming", Fruit farming. The search options can involve the use of either a phrase, title, domain, link ,a sentence, or paragraph.

### **Search Options**

Search options available will vary from one search engine to another. For some search engines such as Yahoo!, the available options are presented on the homepage, while for some, the usually clearly displayed several options are found on the advanced search page. Search options are typically made available by means of a menu, a situation whereby the pull-down menu allows the term entered in the search box to be qualified (the menu approach is easier to use as it allows the searcher to directly qualify the term when it is entered in the main search box).

i. *Phase Searching*: This is an option that is available in every search engine, and perhaps surprisingly, it can be done the

same way in all of them. Phases are generally indicated in a query by the use of quotation marks e.g. "digital library" "deregulation" (quotation marks will ensure that only those pages that contain the exact phrase are retrieved. The use of stop word such as an, in, are not usually included so as to save space or speed up search. When trying your search statement, it is the available field in the search interface that is normally used to formulate complicated searches. Although phase searching is simple and natural for users, it is quite complex to implement.

ii. *Field Searching*: This involves the use of a search engine that supports field searching e.g. Altavista

iii. *Title Searching*: This is often the most powerful technique for getting to some highly relevant pages quickly (high precision). It may also cause the searcher to miss some good ones, but what you get will have excellent chance of being relevant. All the major engines have this option, and most of them let you search titles by means of either menu options or prefix. This is used when searching for a keyword in a title. The result outcome is usually with a relevant response e.g. "ancient civilization".

iv. *Domain Searching*: This is used when a field search is limited to a specific domain/site e.g. domain: edu and "Romeo and Juliet" (.edu – educational site, .com – commercial or business site, .gov – US government / non military site, .mil – US military sites and agencies, .org – organization sites).

v. *Link Searching*: You can search for all pages with hypertext link to a particular URL (i.e. check Web Pages that have a link to a given organisation's URL); or search for words contained in the linked text on the page. There are two types of link searching: see the web page that has the name of a given organisation as linked text. Commonly used when a favourite web page a user is interested in using and linking with is found (link: www). This searching option is available in some search on their advanced page.

S

i

to  
yc  
op  
do  
the  
cor  
par  
disc

Fig.



Find

Source

Online

while s  
adhere

i.

ii.

I  
M  
S  
e  
A

Other search options include language searching, searching by date, searching by file type (Hock, 2013).

## ii. Advanced Search Strategy

The advanced search strategy screen helps the searcher to find sites that match very specific criteria. It lets you restrict your search to a defined category or categories. The search option chosen applies only to the current search. It can be done using either a field, title, domain, or searching link. Using the advanced search tool helps to reduce the number of results considerably; advanced search feature lets you search in a particular journal and/or limit your search to a specific field or discipline (e.g. education).

Fig. 2: Google Advanced Search Screen

Google™ [Advanced Search Tips | All About](#)

**Advanced Search**

Find results with all of the words

with the exact phrase

with any of the words

without the words

10 results

Source: Google, Inc.

## Online Search Techniques Tips

In order to retrieve valuable results from search engines while searching online, some of the following tips must be adhered to:

- i. Look at the search engine's help guide e.g. Google, Dogpile, Alta Vista, Yahoo
- ii. Make use of the basic search template and the advanced search template of the search engine or selected electronic database e.g. Google, JSTOR, HINARI, AGORA, Library Online Catalog.

- iii. Incorporate Boolean operators "AND", "OR", and "NOT" (a Boolean search is a method of refining your quest by linking search terms with 'AND', 'OR', or 'NOT' to better demonstrate the relationships between the words. This establishes a relationship between keywords/ concepts in a search and thus modifies the results from the search. Boolean phrases allow you to pinpoint the types of documents that directly address your query. Boolean searches are simple if you remember the following basic rules:
- a. Use the Boolean terms 'AND', 'OR', or 'NOT' to specify the relationships between keywords:
    - i. Use 'AND' when you want both keywords to appear in the document: Digital AND library (Note: Some search tools require a plus sign (+), (digital + library).
    - ii. Use 'OR' when either keyword can appear in the document: Digital OR library.
    - iii. Use 'NOT' to exclude unwanted terms: Digital NOT library (Note: Some search tools require a minus sign (-) instead (Digital – library).
    - iv. Always capitalize the Boolean search terms (AND, OR, NOT).
    - v. Enclose groups of search terms in parentheses to indicate which actions should occur first: (digital OR virtual) AND library.
    - vi. Enclose multiword search terms in quotation marks digital NOT "library".
      - a. Searching an exact phrase (""). This helps to get fewer and more useful results, e.g., "human cloning", "animal right", "fruit farming"
      - b. Truncation or wildcard sign (\*? #) helps to search for singular or plural of a word, also allows you to search the endings of a word stem, e.g., child\* — child, children, childless; house\* — housing, house, household, households.

- a. Other wildcards replace one letter or character of a word, e.g. wom?n = woman, women.
- b. Limits-some search engines enable you to limit your search results e.g. Google Advance search template.

In addition to all the tips listed above, always have it at the back of your mind that it takes quality time to find information online hence make it a habit to:

- i. Define your subject and objectives.
- ii. Decide how comprehensive the search will be (i.e. is the required information time specific or general).
- iii. Choose the right search tool for your purpose(s).
- iv. Consult the online help to produce the best search results.
- v. Keep a systematic record of the search terms and searches carried out and revise your search strategies until you find the information you want.
- vi. Always remember the fact that an article is in a given database does not mean it is in the library and that access to the full-text online is guaranteed. Also, the fact that a database does not link to the full-text online does not mean to say user(s) can not have access to the full text on-line.

Also guide against the use of vague keywords as this may take a very long time to process your query and may not give you much targeted results. Hence, it is advisable to choose a more precise topic as appropriate keywords will retrieve a more manageable and targeted set of results; do not misspell keywords, for instance don't expect to find information you need if you search for things like 'technical' instead of 'technical' and don't overlook alternative spelling for example, if you want to find out about an American organization, this is likely to be 'organization' and not 'organisation'.

### **Web Evaluation**

The most important factor when evaluating web sites is your search, your needs. What are you using the Web for?

Academic research? Hobbies or vocational interests? Recreation? Leisure? Scholarly sources are traditionally very strongly text-based. Compare the appearance and the content of an academic journal with a popular magazine (Engle, 2014). A number of criteria are used to evaluate Web resources. These includes:

**Purpose:** All information on the web has a purpose or goal. When evaluating a potential web resource it is advisable to consider the purpose whether it is a report on facts or findings, an advertisement, an idea etc. because most information on the web are unbiased but may contain a hidden agenda intended to persuade the reader. The URL of every web site contains a valuable clue to help ascertain the purpose. Objectivity and balance are distinguishing features of reliable information sources but intellectuals are committed to reasoned arguments that consider conflicting but important viewpoints.

**Reputation:** One key way to determine whether a web resource is taking a balanced or objective approach to the subject is to consider the reputation of the publisher. If the publisher is a university press, a well-established publishing company, database hosting firm, or a government agency, then a greater confidence can be imposed in the objectivity of the resources because such organisations will painstakingly review the content/information before affixing their names and their reputations to it.

**Authority:** When the reputation of the publisher/hosting firm is guaranteed, there is also the need to confirm if the author is an authority on the subject being discussed. This can be done by verify the qualifications of the author from the institution he/she is affiliated with. Also try to conduct an author search in the online catalog to ascertain if the author had published other books or articles on the subject.

**Reliability/Authenticity:** To confirm the credibility of a web resource, confirm if it offers various forms of corroboration from scholars of like minds. Such scholar work will look serious and will rarely contain flashy photos that are deliberately designed to appeal to a mass audience.

**Audience:** Most information on the Web is designed for a general audience. Hence, when evaluating resources on the web the key principle is that the information must not be too simple or too technical/specialised. The full display listing usually found online will always provide clues that enable the user to eliminate inappropriate sources of information on the web.

**Timeliness:** For web resources the more recent the information, the better. The reason being that knowledge is constantly created and revised. Hence, web users must carefully note when information was created and determine whether it is still valuable depending on the topic or search terms. However, on the other hand, information produced many years ago may not necessarily be irrelevant because atimes older information might be valuable depending on your topic.

**Recommendation:** This is yet another valuable way of evaluating a web resource. If such a source were cited in another reputable source, then the credibility of such a source (information) cannot be doubted.

Generally, many people think that Web pages are reliable because it offers current information and are easy to access. However, sounding a note of warning, unlike the more traditional forms of information media (books, journals, government documents, periodicals etc.) no one regulates information published on the Web and there is no standard method of cataloguing information. Hence there is the need for every researcher to imbibe the following essential evaluation

skills when surfing the web for information. Web page(s) site evaluation skillfully requires the training of the eye and the fingers to employ a series of techniques that may help quickly in finding out all a user needs to know about web pages; training of the mind so as to think critically, even suspiciously, by asking a series of questions that may help in deciding how much of a web page is to be trusted. Also, Web evaluation can be done by combining the two techniques into a process first by looking at the search results from a search engine, then investigating the content of the page and extending to other people's comments about the page or its authors

### **Techniques for Web Evaluation**

Web page evaluation requires certain techniques and skills on the part of the person conducting the search. Some of the techniques to apply include:

- i. Read the URL (Uniform Resource Locator) carefully - Is it a personal page? domain type (the last three letters of the URL indicates the type of organization responsible for the (edu, gov, com, org), chose pages most likely authentic and reliable.
- ii. Scan the perimeter of the page, looking for answers to questions such as link, about us, background, date last updated.
- iii. Look for indicators of quality information - links to additional sites, related links, publisher of the page (first part of the URL).
- iv. What do others say? Find out what other web page has a link to this page, look up the title/publisher in a reputable directory that evaluates its content (IPL2, INFOMINE).
- v. Does it all add up – think over all you have learnt about the page before you.

## **Rationale for Evaluating Web Resources**

The world wide web can be a great place to accomplish research on many topics. Also worthy of mention is the great wealth that the Internet brought to the society through the ability of people to express themselves, find one another, exchange ideas, discover possible peers worldwide they never would have otherwise met. Through hypertext links in web pages, people suggest so many other people's ideas and personalities to anyone who comes and clicks. However, despite all these and many more advantages that Internet usage has conferred on the society, it is a herculean task to decipher who is who on the net (whether the person is an animal or a scholar of high repute) because uploading documents or pages on the web is easy, cheap or free, unregulated, and unmonitored. The web needs to be free like that! And you, if you want to use it for serious research, need to cultivate the habit of healthy skepticism, of questioning everything you find with critical thinking. However, whatever the situation may be on the Internet resides a great treasure. Hence, the rationale for evaluating carefully whatever you find on the web. The burden is on you - the reader - to establish the validity, authorship, timeliness, and integrity of what you find. Documents can easily be copied and falsified or copied with omissions and errors.

## **Citation Management Tools**

Citation management tools, otherwise referred to as reference management tools, allow researchers to capture bibliographical information about research materials, create bibliographies, add footnotes, and manage research collections. A citation management tool enables researchers to collect, manage, and cite research sources and also makes it easy to share references with other researchers. Likewise, provide it mechanisms that allow researchers to import citations from

research databases, websites and other electronic sources as well as manually enter citations from other sources. In addition, these citation sources can be added to documents which can be used to generate a bibliography in any desired citation format - intentional or accidental.

Some citation management tools also make it easy to share references with other researchers, examples include:

**EndNote:** These are web-based tools for managing and citing references in papers and creating bibliographies. It integrates the following tasks into one program: search bibliographic databases on the internet; organise references, images, PDFs and other files; construct your paper with built-in manuscript templates; watch the bibliography and figure list appear as you write (commercial, web-based).

**RefWorks:** This is an online research management, writing and collaboration tool. It is designed to help researchers easily gather, manage, store and share all types of information, as well as generate citations and bibliographies.

**Bookends:** These are reference managers with support for retrieving bibliographical information and related files from the web, automatically generating bibliographies.

### **Citing Web Resources**

It is very important as a researcher to cite your sources when writing a report or a formal research paper so that other researchers can learn from you and, at the same time, doing so confers a lot of credibility on your write up. Also sources are cited to let people know where they can find information on the Internet or the Web. With focus gradually shifting from the traditional library resources to electronic information resources in the academic communities, the ethics of research demand that writers be credited for their work and writing. This allows readers to locate and further explore the sources you consulted, show the depth and scope of your research, and give credit to authors for their ideas.

pra  
agi  
Be  
mu  
res  
ver  
anc  
fou  
dat  
ava  
the

give  
prin  
also  
May  
note  
cons  
defa  
plagi

### **Conc**

ment  
2013  
even  
and c  
where  
see it,  
about  
no ed  
"send

In written academic work, citing sources is standard practice and shows that you are responding to this person, agreeing with that person, and adding something of your own. Because the Web is not regulated like a library, researchers must sharpen their detective skills and assume greater responsibility for conducting adequate background checks to verify that the information on a Web page is correct, credible, and relevant. However, the biggest problem with citing a source found on the web is identifying the author, title, publication date etc. Also, in some cases the information is not just available or the searcher has to *scrutinize* very well to locate the desired information.

Basically, when citing web sources, there is need to give as much of the typical information as you would for a printed source (author, title, publication, date, etc. Hock, 2013) also, add the URL, and include a comment such as " Accessed May 29, 2013, Available on [www. Google.com](http://www.Google.com)". On a final note, as researchers, there is need for us to cite correctly sources consulted while doing research online so as not to be liable to defaulting existing copyright law and hence charged for plagiarism which if caught constitutes a serious offence.

### **Conclusion**

Conducting online searches require a great deal of mental, physical experience, and time to develop (Tensen, 2013). In fact, some online searches might be tedious and even tiring but when you begin to gain the expertise, skills, and confidence because you know what you are looking for, where to look for it, and how to properly identify it when you see it, then you will begin to experience the thrill on how to go about your search. In the general world wide web, there are no editors (unlike most print publications) to proof read and "send it back" or "reject it" until it meets the standards of a

publishing house's reputation. Also, most of the pages found in general search engines for the web are self-published or published by businesses, small and large with motives to get people to buy something or believe a point of view. Even within the university and library web sites, there can be many pages that the institution does not try to oversee.

Increasingly, many people are turning to the Internet to find information on virtually every topic under the sun. It is often assumed that there is really no need for training on how to search for information on the Internet and that with the appropriate technology in place, conducting an online search is a simple. However, the contrary is the case: online searching requires training after which consistent practice will bring about perfection in the art of conducting online searches. Also, a little time spent in formulating a search strategy will both save you time and provide you with greatly improved results. It is very tempting to rush into your search for information without planning exactly how you are going to carry out your search as people often make some common mistakes such as using the wrong search tool/resources for the job or not planning a good search strategy. Libraries should endeavour to make dramatic improvements in the way access is provided for their numerous collections and mode of service delivery because a lack of knowledge about which resources are available, and about how a particular resource works, can waste time and produce poor results (Breed, 2013). Hence, learning how to search efficiently in databases, and how information is structured in them, provides you with useful transferable knowledge and skills.

### References

- Aina, L.O 2013. Information, knowledge and the gatekeeper. An inaugural lecture delivered at the University of Ilorin 52pp

- Breeding, M. 2013. Next- generation discovery: An overview of the European Scene. In Chambers, S. (Ed.) *Catalogue 2.0.: The future of the library catalogue*. Facet London. pp37-64 .
- Chowdhury, G.G. & Chowdhury, S. 2007 Organizing information: From the shelf to the Web Facet, London 230p.
- Dodge, B. 2008. Four NETS for better searches. Retrieved July 27, 2010 from <http://www.webquest.sdsu.edu/searching/fournets.htm>.
- Education.com 2012. Glossary of education retrieved July 1, 2013 from <http://www.education.com/definition/search-strategies>.
- Engle, M.O. 2014. Evaluating websites: Criteria and tools. Retrieved June 15, 2014 from <http://olinuris.library.cornell.edu/ref/research/webeval.html>
- Hock, R. 2013 The extreme searcher's internet handbook: A guide for the serious searcher (4<sup>th</sup> ed.) Cyber Ade. Medford, New Jersey 315p.
- <http://www.webopedia.com> 2014. Invisible web. Retrieved on May 29, 2014 from [http://www.webopedia.com/TERM/I/invisible\\_Web.html](http://www.webopedia.com/TERM/I/invisible_Web.html)
- <http://www.webopedia.com> 2014. Metasearch engine. Retrieved in May 29, 2014 from <http://www.webopedia.com/TERM/M/metasearch-engine.html>
- <http://digitalresearchtools.pbworks.com> 2010. Management tools. Retrieved on July 10 2010 from <http://digitalresearchtools.pbworks.com/.../citation>
- <http://www.marketingterms.com> 2010. Invisible. web Retrieved 19 July, 2010 from <http://www.marketingterms.com/dictionary/invisible.web>
- <http://google.com> 2010. Advanced search home page. Retrieved 10 July, 2010 from <http://google.com>.
- <http://www.lib.umd.edu/guides/> 2013. Retriever April 10, 2013 from <http://www.lib.umd.edu/guides/primary-sources.html>

<http://www.internet> 2010. Tutorial.net Retrieved 19 July 2010  
 from <http://www.internet> tutorial.net  
<http://www.rba.co.uk> 2010 Search Retrieved 19 July, 2010  
 from <http://www.rba.co.uk/search>  
<http://library.duke.edu> 2010. Citing retrieved 19 July, 2010  
 from <http://library.duke.edu/research/citing>.  
<http://www.webometrics.info> 2010. Glossary. retrieved 19 July,  
 2010 from [www.webometrics.info/glossary.html](http://www.webometrics.info/glossary.html)  
<http://www.wanttoknow.info> 2010. Internet Search Technique  
 retrieved 19 July, 2010 from [http://www.wanttoknow.info/g/internet\\_search\\_technique](http://www.wanttoknow.info/g/internet_search_technique)  
<http://saratogaschools.org/academic/terry/libraryresearchsite/search.html>(accessed July 19, 2010  
[http://www.lib.ed.ac.uk/resbysub/pdf/search\\_skill\\_A4\\_bklet.pdf](http://www.lib.ed.ac.uk/resbysub/pdf/search_skill_A4_bklet.pdf)  
[http://www.lib.ed.ac.uk/resbysub/pdf/search\\_skill\\_A4\\_bklet.pdf](http://www.lib.ed.ac.uk/resbysub/pdf/search_skill_A4_bklet.pdf) (accessed July 19 2010)  
<http://www.library.ralpo.edu/use/evaluation.html> accessed,  
 April 10, 2013  
 Igbeka, J.U. 2010 A closed access library coming up! KDL  
 NEWS A Bi-Annual Publication /of the Kenneth Dike Library.  
 University of Ibadan 1(1) pp8  
 Infomine 1994. Infomine: Scholarly internet resource collection.  
 Retrieved June 10, 2014 from <http://www.infomine.ucr.edu>  
 Larry, J. & Lamb, A., 2007. Developing search strategies.  
 Available on <http://www.biopoint.com/ibr/devsstrat.html>. Accessed on 28/07/2010  
 Library.Encyclopedia. Encyclopedia Britannica Student and  
 Home Edition. Chicago: Encyclopedia Britannica, 2010 .  
 Monette, D. R. et al., 1998. Applied social research: Tool for  
 the human services. (4<sup>th</sup> ed.) New York: Harcourt Brace  
 College Publishers. 519p.  
 Notess, G.R. 2008. Search Strategies from <http://www.searchengineshowdown.com/strategy> accessed July  
 15, 2010.

"Online System" Encyclopedia. Encyclopedia Britannica Student and Home Edition. Chicago: Encyclopedia Britannica, 2010 .

Park, N., Roman, R., Lee, S., and Chung, J.E. 2009 User acceptance of a digital library system in developing countries: An application of the TAM. *International Journal of Information Management*. 29 196 -209

Robert, H. 2000: Internet search tips and strategies. Available on <http://www.virtualsalt.com/howlook.html>. Accessed 27/07/2010

Rubin, R.E. 2010. Foundations of library and information science. (3<sup>rd</sup> ed.) New York: Neal-Schuman 471p.

Salako, O.A. & Tiamiyu, M.A. 2007. Use of search engines for research by postgraduate students of the University of Ibadan, Nigeria. *African Journal of Library and Information Science*. Vol.17, No.2 .

Tensen, B.L. 2013. Research strategies for a digital age, (4<sup>th</sup> ed.) Wadsworth, Centage Learning Australia. 311p

UC Berkeley 2012. Recommended subject directories. Retrieved on June 18, 2013 from <http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/SubjDirectories.html>.

— Invisible or deep web: What it is, How to find it, and its inherent ambiguity Retrieved on June 18, 2013 from <http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/InvisivleWeb.html>.

— Meta-Search Engines Retrieved on June 18, 2013 from <http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/MetaSearch.html>

— Glossary of Internet and Web jargons. Retrieved on June 18, 2013 from <http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Glossary.html>

— Recommended Search Engine. Retrieved on June 18, 2013 from <http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/searchEngines.html>.

— Finding Information on the Internet:  
A Tutorial Retrieved on June 18, 2013 from [http://  
www.lib.berkeley.edu/TeachingLib/Guides/Intro.html](http://www.lib.berkeley.edu/TeachingLib/Guides/Intro.html).  
Witten, I.H., Bainbridge, D., & Nichols, D.M. 2010. How to  
Build a digital library (2<sup>nd</sup> ed.) Morgan Kaufmann.  
Amsterdam.629p.