

INFORMATION LITERACY FOR THE DIGITAL AGE

1st Edition

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INFORMATION LITERACY FOR THE DIGITAL AGE

A Book of Readings

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Foreword

Since the start of information age, *Information Literacy* has become the new literacy needed to be built on the foundation provided by basic literacy. As societies become more mature, the literacy requirement for individuals have gone beyond just the ability to acquire and use reading and writing skills, to include skills for knowing when information is needed and should be sought for to help solve the problems they encounter in various aspects of their lives. Scientific and technological developments have also led to the creation of and continuously improving access by people to the diverse information and services provided by the Internet and other virtual platforms. Individuals need to understand where to look and search for the needed information, and how to use digital technologies to search for the information and services. The quality of information available from various electronic sources also vary widely, making it important for people to be able to distinguish good from bad quality information, superior from inferior research findings and recommendations, and true news from fake news, In such a complex and rapidly evolving information and technological environment, an individual who lacks these information literacy skills would find it highly challenging to obtain and use good quality information for educational, work and living purposes.

This book on *Information Literacy for the Digital Age* is predicated on the need for a basic textbook on information literacy concepts, principles and requirements in all types of universities and specialized colleges of education, technology, agriculture, health etc. Unlike basic literacy skills, information literacy may not be part of compulsory curriculum in most secondary level schools in developing countries. Although entrants to tertiary level institutions in these countries might already be computer and smartphone experienced, they usually still lack knowledge of the tested and recommended principles and practices of information literacy they require to enable them relate most productively and efficiently with the diverse information and services on virtual platforms provided by the Internet and its interconnections of information sources and systems. There is clear need for carefully written teaching and learning textbooks that help motivate and improve the knowledge and skills to effectively and ethically manage relationships with information and technologies of the digital age for creating, accessing, using and communicating information in studies and in future lifelong activities. Helping to address the students' inadequacies and meet the need is the primary motivation for this book.

The book is therefore structured and written to serve as the main or supplementary reading for any *Information Literacy* course as a standalone, or as component course of a General Studies curriculum. Thus, the book presents carefully written introductions to some of the most common taught in Information Literacy, courses. It is a compilation of chapters that helps to build understanding of information literacy related topics including basic information and digital literacy concepts, digital information technologies, resources, systems and services and strategies and techniques for searching, retrieving and evaluating online information. Provided also are reviews and discussions of information ethics issues such as plagiarism and copyright, and how to properly acknowledge and correctly reference consulted sources of information and ideas in research writing. Beyond these, it also provides guides to time management and how to make effective presentations.

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Preface

The idea of Information literacy began many decades ago in libraries under the label of '*library literacy*', when public and academic libraries were the foremost places or institutions where people could search through large collections of printed documents for the factual, fictional, educational or entertainment information they need. The computer revolution that began about the 1950s has since brought great transformations of societies into being technology driven. It has also brought to limelight the importance of various other types of literacies, including information literacy, technology literacy, and digital literacy. Information Literacy is nowadays defined much more broadly than library literacy to include knowledge and skills in knowing what information to search for to solve various problems, where to search for needed information (which nowadays include library, non-library, printed and online sources), how to evaluate and use the information to solve problems, how to ensure compliance with ethical and legal requirements of information access and use, how to use digital technologies to search for, evaluate, use and communicate the information, and so on. Hence, this book and the range of topics covered in its thirteen chapters.

The book begins with the chapter *Understanding Information Literacy* by Afolayan. It explains some elemental concepts and a model of information literacy, as well as components of computer, which are embedded in and drive the technologies and systems of the digital age. Chapter 2, contributed by Ajiboye, dwells on the largely overlapping concepts and requirements of digital literacy, information literacy, technology literacy, media literacy, social literacy, communication literacy and digital citizenship. Chapter 3, contributed by Abdulrahman, discusses the features of the digital age and the role of information and communication technologies (ICT) in key aspects of digital societies, particularly health, education, business and government.

A key component of ICT is the Internet, which interconnects smaller computer, phone and satellite networks, as well as the World Wide Web (WWW or Web). The Internet facilitates access to and sharing of diverse resources provided or needed by various organizations and people in the form of computers, communication networks, services and information. These resources are massive and also growing rapidly. Thus, Chapters 4, 5 and 6 focus on the Internet and the Web and how to use software to effectively search for and find particularly needed resources from them. Chapter 4, contributed by

Balogun, Ahlan and Sulyman-Haroon, explain the various types of Internet and Web resources and their uses. Chapter 5, contributed by Bello, focuses on Internet Search Engines, which are software designed for use in searching for information on the Internet. Chapter 6, contributed by Nasiru, focuses on how to use web searching strategies and techniques to search for information effectively and efficiently.

Internet Search engines, as well as various search applications installed on personal computers, smartphones and other smart devices use information retrieval processes to ensure that they are able to very quickly search for and retrieve specifically needed information from massive quantities of stored information. Chapter 7, contributed by Tihamiyu, explains various concepts, strategies and techniques of information retrieval systems. Thereafter, Chapter 8, Sikiru and Tihamiyu elucidates concepts of recall, precision, accuracy and other ratios that are usually used to evaluate the effectiveness and efficiency of information retrieval systems and strategies.

An information literate person who needs some information and uses a search engine to search for the information is expected to be able to evaluate the quality of any information retrieved, using such criteria as relevance to need, accuracy, completeness, fit for use, and so on. Thus, in Chapter 9, Adedoyin and Oloyede explain the criteria and strategies that can be used to evaluate the quality of information obtained.

Information Literacy also include abilities, to integrate information into existing knowledge, and access and use information ethically, legally, socially and responsibly as global citizens. Accordingly, Chapters 10 to 13 explain how to ethically and responsibly acknowledge and present information from other sources in academic research write-ups. Chapter 10, contributed by Oyekunle discusses plagiarism and how to avoid it when writing about facts and ideas from other sources. Chapter 11, contributed by Sulyman-Haroon and Balogun explains how to list consulted information sources in a reference list at the end of, as well as cite the sources within a research paper or report. Chapter 12, contributed by Oladele and Ibrahim, explains key considerations, strategies and technique for presenting ideas in a talk to an audience, and exemplified using the Microsoft PowerPoint presentation graphics software.

The final Chapter 13 of this book is contributed by Mejabi, and focuses on *Time Management*. Time is a usually very limited resource needed for every activity. Effective time management is crucial for an information literate person to be an effective and

socially participative responsible citizen. In a student's life both during and after school life, effective time management is required: for preparing personal calendars and time tables for learning tasks; for using computer; for searching for information in the library or on Internet; for doing and submitting assignment and research reports; for engaging in leisure, entertainment, social and rest activities; for finishing school, searching for a job and building a career; for starting and raising a family, and so on. Time must be allocated to these and various other activities based on carefully considered personal and social priorities. So, the chapter elucidates how effective time management can be practiced by students to avoid wasted time.

This book was considered desirable about a decade ago, soon after the Department of Information and Communication Science of the Faculty of Communication and Information Sciences, University of Ilorin began to deliver an Information Literacy course as a faculty requirement for all first year students of the faculty. The many lecturers of the course modules quickly noticed the very low entry-level information literacy knowledge of the students and the need for a book of readings on Information Literacy that introduces key topics in the subject in short chapters and easily readable writing styles. The publication of the book was however consciously delayed until now in order to enable the lecturers and contributors to the book to enrich it with several years of content teaching experiences.

We wish to thank the contributors to this book who shared our collective vision for the book, for their effort in providing very readable manuscripts of high content quality. We also acknowledge the institutional and support of the Department of Information and Communication Science of the Faculty of Communication and Information Sciences, University of Ilorin during the preparation of the manuscript of this book. Also highly appreciated are various cohorts of the students of the Faculty whose regular feedback over several academic sessions of testing of the contents by the contributors in the Information Literacy course in the faculty has helped to improve the intellectual and language quality of the content of this book.

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Chapter 9

Evaluating Information from the Web

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9.1 Introduction

The Web contains a great variety of information in diverse types of information sources. Much quality information is published online by reputable individuals and publishers and other organization as in the form of e-books, e-journals, e-magazines and e-newspapers, as well as research/technical reports, conference papers, theses, dissertations, etc. But there is also much average to very poor quality information that put out inexperienced or dubious people and organizations. The information may originate from authors who are experts on a subject or topic, but may also be from people who claim expertise but are not. People also publish information to the Web for various purposes, including to correctly inform or educate, or to misinform. Fake news is real on the Web, and so also is fake research claimed as genuine! Thus information users must beware. This chapter aims to improve your ability to properly evaluate any information that you obtain from Web and other sources before you use it.

9.2 Finding quality information

Most students nowadays prefer to use Web-based search engines like Google to search for information or information sources on the Web instead of using acquired print or subscribed or purchase electronic materials in the libraries of their institutions. Google and other search engines on the Web assist users with locating and indexing Web pages and other documents in their databases and thereafter enabling users to search the databases to find the pages or documents they want. This role of search engines is clearly valuable.

However, the numerous web pages and document that the search engine presents to you in response to your query (i.e. the keywords and phrases you typed into its search box) are usually not evaluated for quality of origin, purpose or content. The pages and documents are retrieved merely because they contain the key words and phrases you typed into the search box. So you must yourself determine if the information in each retrieved page or document is of adequate quality for your use.

Nevertheless, it is also important to note that highly specialized search engines like Google Scholar are much more careful in selecting web pages and documents for indexing in their databases than general search engines like Google or Yahoo. Thus, most of the pages and documents found through specialized search engines them are likely to be of high quality because they use special computer programmes to sift quality web pages and other documents that fit into their specialty from the Web for indexing in their databases. However, most of the quality documents provided by them are not available for free, but must be purchased or subscribed to at usually too high a cost for a student.

But there is a way out for students. What most students don't know is that the library of their institution performs a very valuable role that most search engines do not do. The role is that of carefully reviewing and evaluating numerous alternative sources of information (print books, electronic books, journals, reports, thesis, dissertations, etc.) before some are selected and acquired for addition to their collection. The library performs this role very carefully because the different types of documents they maintain in their collection cost a lot to acquire, while their available fund for acquiring them are very limited. In order words, the print documents that you find on library shelves, or the e-books, e-journals and other electronic documents you find during a search of the library's OPAC are more likely to contain good quality information than the freely accessible and downloadable documents that you find using general web search engines like Google or Yahoo.

Students, academics and researchers usually seek information for various academic and research purposes, and often do so using various Internet search engines such as Ask, Google,

Yahoo, etc. Among their objectives for seeking the information are:

- Seeing what is available by starting with a topic search
- Finding and verifying citations
- Finding material that's not in the published scholarly literature, such as conference proceedings and white papers can be found using the web.

Google and Google Scholar are among the popular search engines for finding information on the Web (Beeferman & Berger, 2000). The way to do a Google search is to enter one or more selected keywords or phrases into the search box on the Google main page (see Figure 1). Also, selecting the Advanced Search option on the page enables you to use Google Scholars (see figure 3), which enables you to find higher quality search results. Both Google and Google Scholar can provide you access to various databases that provide information for academic and research purposes. These databases help researchers and students get hold of important academic and research resources, statistical surveys etc.

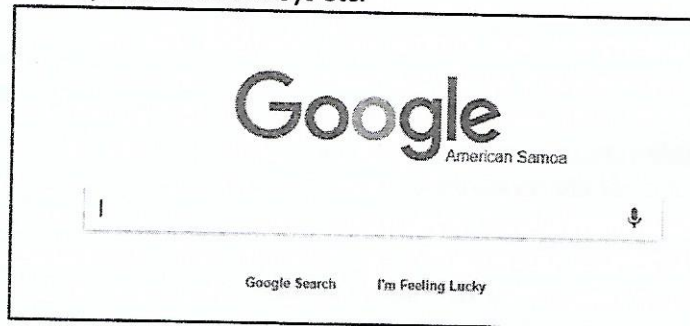


Figure 9.1: Search box of the main Google page.

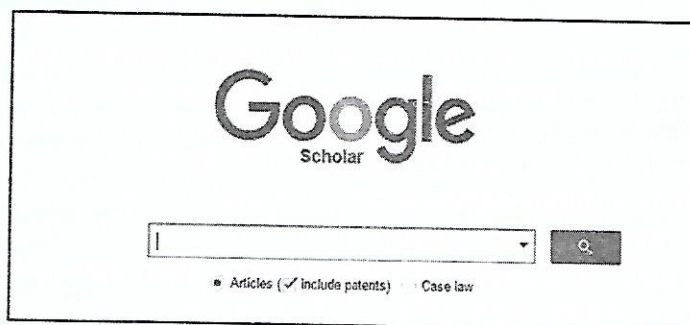


Figure 9.2: Advanced search page (Google Scholar)

For some specialized subjects, you might also have to look beyond even Google Scholar to other specialized search engines that might be more focused on certain subjects. This is because not all the good information out there is available online (Fallows, 2005). Additionally, good quality information is often not available for free download. This is the reason the libraries of tertiary education institutions often subscribe to major academic and research databases such as Elsevier, Springer, IEEE, etc. in order to enable their students and researchers to have access to high quality information.

It is very important that students patronize the e-resources (e-books, e-journals, etc.) that the library of their institutions purchase or subscribe to. Many libraries lament that most students don't use much the high quality e-resources that their libraries acquire at great cost, preferring instead to surf the Internet directly for information and download free documents much of which might be of poor quality. Students should use their libraries more for obtaining both print and electronic documents for their research and academic works in order to encourage the libraries to continue to acquire and maintain good quality resources for them.

9.3 Evaluating what you find

Today, the Internet offers variety of information and data from different sources worldwide. This makes information to be readily available and accessible. But the information may be true or false originate from political propaganda or product marketing sources, or from very good or very poor research sources. Some of the information might be unsuitable for use in any academic or research work, while other information might be adequate in quality only for students' assignments and projects, but inadequate for thesis and dissertation research work.

Thus, it is highly important to always think critically about and evaluate what you find, especially if you are going to use it for academic work purposes, such as writing assignments and projects (Open University, 2017).

A good research effort demands that you read adequate number of good number of sources of information on the topic

of your research so that you can know about the earlier works of others on the topic, and obtain get facts and ideas (evidence) to back up your own writings. But, the facts and ideas must be obtained from quality information sources. Thus, you need to critically evaluate the quality of each source before accepting or believing any facts and ideas from it. The key to critical evaluation is a fair and balanced assessment of information obtained from alternative sources. And it is important that you consider both the positive and negative aspects of each of the different sources (Study Hub, 2017).

There are some basic questions that need to be typically considered in evaluating any information resource, print or electronic, this could include:

- Are the authors well-known in the discipline?
- What are the authors' qualifications?
- Do the authors' prior education, work, and publications relate to the topic under research?
- Is the publishing organization clearly identified on the document?
- If the document is a journal article, is the journal peer-reviewed?
- Are the reviewers well-known and knowledgeable in the field?
- Is this organization or publisher recognized as an expert in the field you are researching?

To keep these various criteria in mind, the Open University Library (Open University, 2017) developed an evaluation tool known as "**PROMPT**", an acronym for **P**resentation, **R**elevance, **O**bjectivity, **M**ethod, **P**rovenance, **T**imeliness, as a guide for evaluating any kind of information. Each of the elements of PROMPT are now explained in the table below.

P R O M P T	Presentation • Is this information clear? • Is the language right? • Can I find what I need here? • Is it succinct? Sometimes what you see may make it hard to judge whether what you have is what you want, or even if the information is worth having. It may be that something which looks insignificant is actually the most important piece of information available. Or it may be that something which looks good on the face of it is not what it seems. However, you need to develop the skill of looking beyond the surface appearance.
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P R O M P T	Relevance • Does this information match my needs right now? Scan it quickly to get an overview. • What is it mostly about? The information in front of you may be of high quality but not actually relevant to the question you are asking or to the scope of your search, for example: ○ Level – it may be too detailed/specialized or too general/simple for the level at which you are working ○ Emphasis – it may not contain the kind of information you are seeking – this is often a question of emphasis, and one which, in the case of a journal article for example, may not easily be identifiable from an abstract ○ Geographic – it may relate to countries or areas you are not interested in at this time. You can probably think of others that relate to your own subject field.
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P R O M P T	Objectivity • It's important to be aware of opinions and hidden agendas. • What are you being "sold" here? A particular product, a corporate view? • Is the language used emotive? • Are opinions expressed? • Are there sponsors? • What are they selling? • What are the vested interests? The concept of objectivity can be problematic. This is especially true of controversial topics such as climate change, wind farms, genetically modified foods, or parenting. However, even information which purports to be 'balanced' may have hidden agendas or vested interests. It is important to develop a critical awareness of the positions or interests represented in what you read.
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P R O M P T	Method • If statistical data is presented, what is this based on? • How was data gathered? • Was the sample used really representative? • Were the methods appropriate, rigorous, etc.?
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P R O M P T	Provenance • Is it clear who produced this information? • Where does it come from? Whose opinions are these? • Do you trust this source of information? Provenance provides 'credentials' for a piece of information and supports its status and perceived value. Knowing the author enables you to find out whether they are an expert in this area and what their perspective is (are their views known to be controversial?), find out what else they have published, find out who else has cited their work and perhaps even contact them. Knowing about the sponsoring organization can help you to understand what their main 'business' is (e.g. commercial, voluntary, research), how well-established it is, who the people involved are, and who they are linked with. Knowing how something was published can help you identify how reliable it is. For example, has it been through an editorial or peer review process by experts in the field? Even if this is the case, you should still evaluate it. Being published in a prestigious academic journal is not an automatic indicator of quality.
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P R O M P T	Timeliness • Is this current? • When was it written and produced? • Has the climate/situation changed since this information was made available? • Is it still up to date enough? How important it is to have the very latest information depends on what you need it for. The date is not always easy to find: sometimes online sources do not have a clearly visible publication or 'last updated' date. Also, even information that is not very old may have been superseded, for example, in the case of regularly produced reports or statistics. It is therefore important to be aware of the type of source and how often it is produced.
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PROMPT offers a structured method for evaluating any information that you find online. This is useful if you are looking for information from trustworthy sources to support arguments in an assignment or project. This can also be used in a work environment, for example to find material for a project or report. Note however that the nature of your assignment or work will influence how you evaluate the usefulness of a source.

9.4 Using the information

Any information you find from a retrieved source must be evaluated in terms of the criteria and questions of the PROMPT evaluation method. The information may be facts, ideas or actual words extracted from the text, sound, images or video in the source. It is only after that that you can use the information in your assignment or project. Furthermore, you need to also cite and reference the used information correctly in the project or assignment, to avoid plagiarism. Referencing involves the following two aspects:

- (a) inserting citations to the sources of the used information at the points where the information is used in the text of your project or assignment (known as in-text citations);
- (b) providing information about the source of information itself in the list of reference at the end of the project or assignment.

9.5 Conclusion

These two aspects are referred to as citing in the document and compiling your bibliography (Birkbeck Library, 2014). There are standard approaches to referencing, known as referencing styles, among which are the American Psychological Association (APA), Harvard, Institute of Electrical and Electronics Engineers (IEEE) styles. Another chapter of this book is devoted to the Referencing in more detail. In order to select one, check your course or module handbook for guidance on which style to use. There is also a variety of referencing software that you could use, including EndNote, Zotero, RefMe, Mendeley. These tools can be used to store, manage and organize your references.

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