

INFORMATION LITERACY FOR THE DIGITAL AGE

1st Edition

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Naeem Atanda Balogun Mutawakilu Tihamiyu Abd Rahman Ahlan

INFORMATION LITERACY FOR THE DIGITAL AGE

A Book of Readings

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Chapter 2

Digital and Related Literacies

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2.1 Introduction

The possession of Information Technology skills by individuals enable them to use computers, software applications, databases and other technologies to achieve a wide variety of academic, work and personal goals (<http://www.ala.org>). Most of the current generation of students have been privileged to have access to modern technologies right from their birth thereby conferring on them “digital native” status, and enabling them to be able to learn and use technology to create and access electronic information more easily than their parents. A study by Salisbury & Karasmanis (2011) showed that students preferred Google as their first choice tool for finding information. This made the authors to refer to the current generation of students as the ‘Google generation’, for which search engines are their first choice for searching for information. This also highlights the importance of the Internet and search engines for students for information access and use.

2.2 Digital Literacy

According to Cornell University, “Digital Literacy is the ability to find, evaluate, utilize, share, and create content using information technologies and the Internet”. A digitally literate person is expected to possess a range of skills for effectively, usefully and efficiently interacting with information created and used through the technologies of the digital age. These skills include:

- knowledge of the basic principles, purposes and uses of computing devices and computer networks
- knowledge of how to use technology to obtain and construct new meaning in ways that are appropriate to one’s needs

- understanding of the various societal issues associated with digital technologies and their uses
- ability to engage in online communication transactions for education, work, leisure and local, national and global citizenship
- ability to find, evaluate and use information effectively
- ability to use technology to produce and share information and ideas in society for the development of self and society
- ability to apply critical thinking to problem solving and decision making tasks in educational, at work and home, and in leisure
- ability to use lifelong learning skills to keep pace with the rapidly evolving technologies of the digital society.

These skills can be acquired through appropriate education, training and digital life experiences that push individuals to think and communicate in diverse ways through diverse information technologies and media. Digital literacy allows individuals to communicate and learn through variety of ways mostly mediated by technology. The different kinds of skills enable individuals to interpret the diverse roles, uses and implications of digital devices and media. Digital literacy does not replace traditional forms of literacy, but builds upon the traditional forms of literacy, such as basic literacy and numeracy.

A very important aspect of digital literacy is adequate understanding and adherence by each person to the ethical norms and standards of behaviour in online environments. Online communities interconnect people from different societies and cultures across the world, and participants in such communities must ensure that they create, use and share information in ways that are not injurious to the different participating societies and cultures. Behavioural protocols are invariably needed in the digital age where there is no longer a clear distinction between online consumers and producers (Jenkins, 2009). Just as in any society, each online community has its rules and norms regarding the creation, circulation and use of information, to which all participants are expected to adhere.

2.3 Promoting digital literacy skills

Most students today have more knowledge about technology than their teachers, but most have not had instruction on how and when best to use technology appropriately enhance their learning or to showcase their learning to their teachers and peers. As leaders and motivators, teachers need to use digital technologies to interact with their digital native students in and outside physical classrooms, as well as motivate their students to explore and experiment with technologies in their learning, communication and interactions with their teachers and peers. Here are some specific ways in how digital literacy can be promoted and integrated in teaching and learning by teachers and students alike:

- Promoting use of web browsers, search engines, email, wiki, blogs etc. in teaching and learning.
- Using image, video and animation software such as PowerPoint, Photoshop, Adobe Flash and other software for learning or to showcase learning.
- Improving skills for evaluating online resources and information for accuracy, relevance, currency, trustworthiness, etc.
- Using mostly online classes or blending online and regular classes to enhance learning.
- Improving skills in the selection of appropriate media to deliver content in classes or for students to showcase their learning to their teachers and peers.
- Using and allowing students to use interactive whiteboard in classroom presentations and learning activities on daily or regular basis.
- Encouraging students to experiment with technology to showcase their learning and innovative ideas.
- Using Web resources (websites, video, music) to enhance students' learning.
- Teachers and students creating online content to be utilized in and out of the classroom.

Literacy skills have always been important. In centuries past, people communicated via hand written letters. These soon turned into telegraph messages. From there humanity advanced to the voice telephone, computers, Internet, and then unto text messaging through mobile phones. Then came the

smartphone revolution, which put small powerful computers in peoples' hands. Today's technological options for communication are now very diverse. Students learn technology just like they learn spoken languages, by observing, and doing initially by imitation and then innovatively. So, it is not uncommon today for a three-year old child to have some basic knowledge regarding how to get on to the computer and start a computer game.

Students have for centuries been taught how to evaluate, apply, analyse and synthesize knowledge. Today, the way students are able to learn, and showcase and apply their learning has surpassed the limitations of physical classrooms, chalk boards, handwritten notebooks, print textbooks, and printed poster and shoe box presentations. For today's students technological developments are providing immense and diverse resources for learning, showcasing and applying these skills. They are now easily able to use the Internet to find text sources, videos, podcasts and presentations related to anything they want to learn about. The big questions however are:

- Would this generation of students be able to sift good ideas from all the information they encounter through use of the emerging technologies?
- Can they create new good ideas from the differentiated good and bad ideas?
- Would the new ideas lead to great innovations and discoveries that help humans understand their place in the world and make life easier for all?

Accordingly, digital literacy should be considered to involve more than just technology use skills, and should be considered to include a wide variety of ethical, social, and reflective practices that are embedded in work, learning, leisure, and daily life.

2.4 Multi-Literacies of the Digital Age

The term "multi-literacies" is often used to describe the various aptitudes and abilities that are needed for us to *understand, use and create* digital media. Thus, under the "digital literacy" umbrella are a wide range of interrelated skills that traditionally fall under such narrower in scope literacy concepts like media

literacy, technology literacy, information literacy, visual literacy, communication literacy and social literacy (Jenkins et al, 2006). Each of these literacies is now briefly described.

Media literacy: Media literacy is closely associated with digital literacy. Media literacy refers to the ability to access, analyse, evaluate and produce “media text”, defined to broadly to include produced text, images, audio and video. Media literacy requires understanding and appreciation of:

- the art, meaning and messaging of various media texts
- the impact and influence of mass media and popular culture
- how media texts are constructed and why they are produced
- how different media can be used to communicate our own ideas effectively

Technology literacy: This literacy include basic computer skills to more complex skills like editing a digital film or writing computer code, as well as knowledge of the ethical, legal, social issue associated with use of such skills. So one has to be careful not to think that technology literacy stops are skills to use computers or technology; it also include using such skills in legal and socially responsible ways, For instance, young people with superb computing skills may still trust too much the information found online, or plagiarize ideas or text straight off the Web for school projects, or not care at all about the privacy violations of his/her online activities. Digital literacy involves both skills and legally and socially responsible online habits that require careful reflection, critical awareness and responsibility.

Information literacy: This includes the abilities to determine what information is needed to solve a problem, to know how to find it from human, print or online sources, and how to critically evaluate and use it. Originally developed by librarians for library use, information literacy translates well into the digital era where people are surrounded by an ocean of unfiltered online information of varying nature and quality, and where the ability to think critically about different available sources and content is essential.

Visual literacy: At its most basic, visual literacy refers to abilities to understand and produce visual messages, whether through objects, actions or symbols. Elements of visual literacy include abilities to read and interpret road signs as pedestrian, to understand symbols on home appliances, or to read and understand a map or a chart. Visual literacy is essential to learning and communicating in modern society.

Communication literacy: This competency is the foundation for thinking, organizing and connecting with others in today's networked society. Today's youth need to know how to integrate information in different formats from multiple sources such as text, numeric data, music, video, online databases and other media to create their own content (Jenkins et al, 2006), and how to use multiple sources and media to disseminate and share knowledge.

Social literacy: Social competencies are needed for full participation in digital society, which media scholar Henry Jenkins describes as a "participatory culture" that is developed through collaboration and networking.

In such a world, youth need skills for working within social networks, for pooling knowledge within a collective intelligence, for negotiating across cultural differences that shape the governing assumptions in different communities and for reconciling conflicting bits of data to form a coherent picture of the world around them. (Jenkins et al, 2006).

Jenkins et al (2006) also identify a series of "new literacies" that are built upon and reinforce these social skills, as follow:

- *Play* – the ability to experiment with one's surroundings as a form of problem-solving
- *Performance* – the ability to adopt alternative identities for the purpose of improvisation and discovery
- *Simulation* – the ability to interpret and construct dynamic models of real-world processes
- *Appropriation* – the ability to meaningfully sample and remix media content

- *Multitasking* – the ability to scan one's environment and shift focus as needed to salient details
- *Distributed Cognition* – the ability to interact meaningfully with tools that expand mental capacities
- *Collective Intelligence* – the ability to pool knowledge and compare notes with others toward a common goal
- *Judgment* – the ability to evaluate the reliability and credibility of different information sources
- *Transmedia Navigation* – the ability to follow the flow of stories and information across multiple platforms (understanding a storyline that's told both on a TV show and a website, for instance, or following a news story through various different outlets)
- *Networking* – the ability to search for, synthesize, and disseminate information
- *Negotiation* – the ability to travel across diverse communities, discerning and respecting multiple perspectives, and grasping and following alternative norms.

2.5 Digital Citizenship

Digital Citizenship Institute (2017) observes that as important as digital literacy is, it is only one aspect of being a digital citizen. Digital citizenship can be defined as appropriate, responsible behaviour by an individual with regard to technology use in the online and social communities wherein he live, at the local, national and global levels. Digital citizenship is conceptualized as encompassing the following nine main aspects or themes:

1. ***Digital Access (Full electronic participation in society):***
Technology users need to be aware that not everyone has the same opportunities when it comes to technology. Working toward equal digital rights and supporting electronic access is the starting point of Digital Citizenship. Digital exclusion makes it difficult to grow as a society increasingly using these tools. Helping to provide and expand access to technology should be goal of all digital citizens. Users need to keep in mind that there are some that may have limited access, so other resources may need to be provided. To become productive citizens, we need to be committed to make sure that no one is denied digital access.

2. **Digital Commerce** (*Electronic buying and selling of goods*): Technology users need to understand that a large share of market economy is being done electronically. Legitimate and legal exchanges are occurring, but the buyer or seller needs to be aware of the issues associated with it. The mainstream availability of Internet purchases of toys, clothing, cars, food, etc. has become commonplace to many users. At the same time, an equal amount of goods and services which are in conflict with the laws or morals of some countries are surfacing (which might include activities such as illegal downloading, pornography, and gambling). Users need to learn about how to be effective consumers in a new digital economy.
3. **Digital Communication** (*Electronic exchange of information*): One of the significant changes within the digital revolution is a person's ability to communicate with other people. In the 19th century, forms of communication were limited. In the 21st century, communication options have exploded to offer a wide variety of choices (e.g., e-mail, cellular phones, instant messaging). The expanding digital communication options have changed everything because people are able to keep in constant communication with anyone else. Now everyone has the opportunity to communicate and collaborate with anyone from anywhere and anytime. Unfortunately, many users have not been taught how to make appropriate decisions when faced with so many different digital communication options.
4. **Digital Literacy** (*Process of teaching and learning about technology and the use of technology*): While schools have made great progress in the area of technology infusion, much remains to be done. A renewed focus must be made on what technologies must be taught as well as how it should be used. New technologies are finding their way into the work place but not yet being used in most schools (e.g., videoconferencing, online sharing spaces such as wikis). In addition, workers in many different occupations need immediate information (just-in-time information). This process

requires sophisticated searching and processing skills (i.e., information literacy). Learners must be taught how to learn in a digital society. In other words, learners must be taught to learn anything, anytime, anywhere. Business, military, and medicine are excellent examples of how technology is being used differently in the 21st century. As new technologies emerge, learners need to learn how to use that technology quickly and appropriately. Digital Citizenship involves educating people in a new way—these individuals need a high degree of information literacy skills.

5. **Digital Etiquette** (*Electronic standards of conduct or procedure*): Technology users often see this area as one of the most pressing problems when dealing with Digital Citizenship. We recognize inappropriate behaviour when we see it, but before people use technology they do not learn digital etiquette (i.e., appropriate conduct). Many people feel uncomfortable talking to others about their digital etiquette. Often rules and regulations are created or the technology is simply banned to stop inappropriate use. It is not enough to create rules and policy, we must teach everyone to become responsible digital citizens in this new society.
6. **Digital Law** (*Electronic responsibility for actions and deeds*): Digital law deals with the ethics of technology within a society. Unethical use manifests itself in form of theft and/or crime. Ethical use manifests itself in the form of abiding by the laws of society. Users need to understand that stealing or causing damage to other people's work, identity, or property online is a crime. There are certain rules of society that users need to be aware of in an ethical society. These laws apply to anyone who works or plays online. Hacking into others information, downloading illegal music, plagiarizing, creating destructive worms, viruses or creating Trojan Horses, sending spam, or stealing anyone's identity or property is unethical.
7. **Digital Rights & Responsibilities** (*Freedoms available to everyone in a digital world*): Just as in the American Constitution where there is a Bill of Rights, there is a

basic set of rights extended to every digital citizen. Digital citizens have the right to privacy, free speech, etc. Basic digital rights must be addressed, discussed, and understood in the digital world. With these rights also come responsibilities as well. Users must help define how the technology is to be used in an appropriate manner. In a digital society these two areas must work together for everyone to be productive.

8. **Digital Health & Wellness** (*Physical and psychological well-being in a digital technology world*): Eye safety, repetitive stress syndrome, and sound ergonomic practices are issues that need to be addressed in a new technological world. Beyond the physical issues are those of the psychological issues that are becoming more prevalent such as Internet addiction. Users need to be taught that there are inherent dangers of technology. Digital Citizenship includes a culture where technology users are taught how to protect themselves through education and training.

9. **Digital Security (self-protection)** (*Electronic precautions to guarantee safety*): In any society, there are individuals who steal, deface, or disrupt other people. The same is true for the digital community. It is not enough to trust other members in the community for our own safety. In our own homes, we put locks on our doors and fire alarms in our houses to provide some level of protection. The same must be true for the digital security. We need to have virus protection, backups of data, and surge control of our equipment. As responsible citizens, we must protect our information from outside forces that might cause disruption or harm.

2.6 Respect, Educate and Protect (REP)

The elements of digital citizenship explained above have also been organized under the principles of Respect, Educate and Protect (REPs) (Digital Citizenship Institute, 2017). Almost everyone understands that to keep a healthy body it is beneficial to be active, and one way is to begin a workout routine. Often workouts have the person go through several

repetitions, or reps, to strengthen muscles. With the increase in technology in the hands of everyone, especially kids, parents are in the need of a new workout, and new REPs, comprising the following components and dimensions:

- **Respect Your Self, Respect Others**
 - Etiquette
 - Access
 - Law
- **Educate Your Self, Connect with Others**
 - Literacy
 - Communication
 - Commerce
- **Protect Your Self, Protect Others**
 - Rights and Responsibility
 - Safety (Security)
 - Health and Welfare

Notice that there are two aspects to each component of the REPs. One aspect concerns a particular person's relationship to technology. This aspect is represented by respect yourself, educate yourself and protect yourself. The other aspect concerns the individual's responsibility to others in digital communities and society – i.e. respect others, connect with others, protect others. The principles of respect, educate and protect each include elements to help parents and children discuss the issues and ideas that are happening or are possible with respect to technology (Digital Citizenship Institute, 2017).

2.7 Conclusion

Being an information and digital literate individual is of crucial importance in today's information society. Students must be able to keep pace with the constant changes in information technologies, storage formats and retrieval techniques, and deal with the associated information overload, anxiety and stress. Library orientation programs and the teaching of information retrieval skills that many educational institutions deliver to students are often not adequate in terms of content, duration and opportunities for real skill development. More focus on critical thinking, data-driven decision making and analytical problem solving is required. Emphasis should be placed on developing students' critical thinking skills because it

is not only the process of finding good information that is important, but also how best to use the information differently for various purposes. Information literacy has become one of the most important skills in the information society and governments have a specific responsibility towards citizens to prepare them through the various education levels to become adequately information literate for the lifelong challenges of the digital era (Boekhorst, 2004).

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