

Information Overload: A Case for the Developing Countries

Dr. Mrs Susan Nnadozie Umeozor

University Librarian, Donald Ekong Library, PMB 5323, Choba, Port Harcourt, Nigeria

Abstract

This paper discusses information overload with particular reference to the developing countries. Information overload depicts a situation in which the speed of information generation far exceeds the rate of information usage as is the case especially in the developed countries and it is caused by the advancement in Information Communication Technology (ICT). It also depicts a limited access to available information which is the case especially in the developing countries. This later aspect of information overload is caused by limited funds to subscribe to the internet resources by individuals and Internet servers by commercial Internet providers. It is also caused by lack of trained technical experts to man the systems and by irregular electricity supply. In the libraries, limited access to available information is caused by misshelving of books, misfiling of catalogue cards, delays in processing acquired materials, inappropriate signing of subject headings at the processing stage, unfriendly attitude of some library staff towards users, and lack of skills of the users to locate materials in the library. Information overload results in information anxiety, frustration, time and energy wasted, stress, and tension for the users. This problem can be minimized as the number of Internet providers increases and the cost of subscription to the Internet is reduced. Regular electricity supply and more trained technical experts to man the systems will also minimize the problem. Library staff can assist in minimizing the problem through the provision of efficient information retrieval systems and guides, processing of materials as soon as they are acquired, being more friendly and ready to assist users, and by embarking on users' education to enhance their access to available information in the library.

Keywords: information overload, information communication technology, information storage and retrieval system, library, user education, inaccessibility of information

1. Introduction

We are now in the information age and with it, comes increased quantity of new information being generated at a very rapid rate. Acceleration of developmental changes is accompanied by an increase in information needed to keep up with these advancements (Heylighen, 1999). Technological advances have facilitated generation and distribution of information. Foskett (1979) noted that, nowadays, the quantity of new information being generated is such that no single individual can hope to keep pace with even a small fraction of it. The problem libraries and other information centers face is ensuring that users, who need information, can obtain it with minimum cost (both in time and money) and without being overwhelmed by large amount of irrelevant materials. The society is being suffocated by the information deluge which threatens to exceed our ability to manage it. Nelson (1995) observed that success by students, lecturers, researchers, companies, and individuals hinges upon the ability to locate, analyze, and use information skillfully and appropriately.

1.1 Information

Information is a set of data that enables individuals, organizations, politicians, and government officials to make rational decisions. It enables one to be better informed about issues, problems, and challenges in the society. With relevant information, one can improve on one's existing ways of doing things. Hence, information facilitates advancement of knowledge and decision making processes. Feather (1999) defined information as a part of the total stock of human knowledge. For Aiyepoku (1989), information is man's accumulated knowledge in all subjects, in all forms, and from all sources that could help its users to make rational decisions. Information is indispensable in all spheres of life. At the national level, it is the basis for economic and technological development; it enhances advancement of knowledge. Information is so vital that no organization or individual can function effectively without it.

1.1.1 Information overload

Information overload is an abstract phenomenon which is not easily grasped. It depicts a situation in which the speed at which information is flowing in so overwhelming that it is difficult to keep pace with it. It equally applies to a situation in which there is so much information available, but access to it is a major problem. Information overload is a global problem and it is variously referred to as information glut, information smog, and infobog among others.

Overwhelming speed of information generation is a major problem in the advanced countries. Feather (1999) stated that information overload starts from the point at which there is much information that it is no longer possible to effectively use it. He further added that information overload is an increasing common phenomenon in the advanced countries. Nelson (1995) defined information overload as the inability to extract needed knowledge from an immense quantity of information for one of the many reasons. Foley (1995) defined information overload as a

gap between the volume of information and tools we have to assimilate that information into useful knowledge. According to him, this gap has prompted technology managers to look for ways to develop new aids and tools to control information explosion. These tools may help to close the gap between the overwhelming volume of information and users' ability to filter and manage it. Wurman (1989) explained that information overload occurs when a person feels overwhelmed by the amount of information to be understood.

Inaccessibility to available information (an aspect of information overload) is a major problem in the developing countries. Aguolu and Aguolu (2002) stated that there is a problem of ensuring effective access to resources in the libraries and information centres. Wurman (1989) observed that information overload occurs when a person knows where to find some information but does not have the key to access it. This is the situation mostly in the developing world. This paper discusses information overload with particular reference to the developing countries.

2.0 Causes of Information Overload

Rapid changes in knowledge have led to more publications in different disciplines. Aguolu and Aguolu (2002) observed that the advancement of knowledge is made possible through specialized investigations in the universities, research institutes, business, and industrial establishment which are multiplying both in the developed and developing countries. According to the New World Encyclopedia (2017), the general causes of information overload include a rapid increase in the production rate of new information, the ease of duplication and transmission of data across the internet, increase in the available channels of incoming information such as telephone, e-mail and instant messaging, large amount of historical information, the ratio of useful information to false or irrelevant data, and lack of a method for comparing and processing different kinds of information.

Strother and Ulijn (2012) noted that the development of the internet quickened the pace at which information could be transmitted and received. With social networking tools such as Facebook and numerous blog sites, anyone with a thought, an idea, or an opinion and access to the internet can now become not only an author but also a publisher of information. E-mail can be regarded as a major contributor to information overload as people struggle to keep up with the rate of incoming messages. In addition to filtering out unsolicited commercial messages, users also have to contend with the growing use of e-mail attachments in the form of lengthy reports, presentation, and media files (New World Encyclopedia, 2017).

2.1.1 Causes of information overload in the developing countries

Inaccessibility to available information is a major problem in the developing countries. Access to internet is fairly limited for a number of reasons, including cost. Subscription to electronic resources is quite expensive and is usually paid for in foreign currency. Increasingly, many more journals are published electronically and these are inaccessible to many scholars in the developing countries who cannot afford the cost of subscription. Thus, despite the rapid development of Information and Communication Technologies (ICTs), information poverty has traditionally dominated most African countries. The majority of researchers and academics are deprived of accessing the key research literature that is found mainly in expensive journals published in the developed countries (Lwoga *et al.*, 2007).

Irregular electricity supply is another obstacle to internet access in the developing countries. Internet is highly dependent on regular electricity supply. Most commercial internet outlets have stand-by generator. However, frequent power change over contributes immensely to frequent breakdown of ICT infrastructure.

2.1.2 Causes of information overload in the libraries

The library is the repository of recorded knowledge. The ability of the librarians to supply information to users when they need it and as soon as possible is one of the major objectives of any library. User's inability to access resources available in the library is a serious problem in the developing countries.

Failure of the library staff to promptly process library resources contributes significantly to this problem. Often, there is a long delay in processing books, journals, and other library materials acquired by the library. Users rarely get access to these information resources, even though they are available in the library

Another contributing factor to inaccessibility of information in the library is the inappropriate signing of subject headings. Not being precise in specifying the subjects of the documents being processed, leads to access problem in the library. The higher the specificity (at the processing stage) the higher the chances of achieving higher relevance at the search stage.

Misshelving of books is another factor that leads to information overload in the library. Some students or even some staff do remove books from their appropriate locations on the shelves to other locations in a bid to hide them for later use. This selfish attitude deprives other users access to those resources. Some library staff can equally misshelve books due to their lousy attitude to work.

Misfiling of catalogue cards leads to inaccessibility of library resources by users. Library catalogue is the record of its holdings/collections and the purpose is to lead users to particular items in the library. It is a representation of the physical items (such as books and journal) in the library and, therefore, a vital access tool. Misfiling of these vital documents creates access problem in the library. Some users (especially students) lack the

skills and ability necessary to effectively access and retrieve information in the library. Additionally, in the face of information explosion, selecting and acquiring the latest and right information becomes an uphill task for the librarians. Faced with declining budgets and increased demands from users, libraries are finding it difficult to acquire publications to meet such demands (Ugah, 2007). Worldwide inflation and economic recession have drastically increased the cost of publications. Also, many publications have been priced out of the reach of individuals and many libraries (Ugah, 2007; Ifijeh, 2010). This reduces access to information.

This limited access to information necessitated the intervention of some donor agencies in 2010 for information access and library development to assist researchers in the developing countries. According to Research4life.org, there are four programmes, HINARI, AGORA, ARDI, and OARE which provide the developing countries with free or low-cost peer reviewed content online. The main objective of this partnership was to reduce the gap in scientific knowledge between industrialized nations and the developing countries. On the whole, these intervention programmes have provided better access in the developing countries to science scholar (Lwoga *et al.*, 2007). In fact, several university libraries in Africa can record considerable achievements such as access to e-resources, raising of internet awareness, and training in its use, provision of ICT facilities and connectivity (Rosenberg, 2006). However, lack of funds to maintain the low-cost subscription of the interventionist programmes remains a big problem. Also, funds for acquiring and maintaining ICT infrastructure continue to be the main challenges in African countries (Rosenberg, 2006; Lwoga *et al.*, 2007).

2.1.3 *Consequences of Information Overload*

There are many consequences of information overload which include information anxiety, time wasted, frustration, underutilization of resources, and stress/tension. Information anxiety is synonymous with information uncertainty, information scarcity, and information starvation. Information anxiety is a state of little or no information in the midst of large quantity of available information. Nelson (1995) defined information anxiety as the overwhelming feeling one gets from too much information or being unable to find or interpret data. He further explained that information anxiety results from the user's inability to access and extract meaning from the wide accumulation of information available. This is a direct consequence of information glut. Users waste substantial amount of time, efforts and energy looking for information, and still may not gain access to relevant information for a number of reasons. This may be due to misfiling, inappropriate signing of subject headings, and misshelving. Internet at the critical time of the day can be very slow especially in the developing countries thereby increasing the frustration of the user. Also, materials in the internet are not properly organized to enhance retrieval.

Frustration is another direct consequence of information overload. Users are frequently frustrated as a result of their inability to access and retrieve relevant information from their searches. It equally leads to under utilization of information, because what cannot be accessed cannot be utilized. Students are frequently frustrated due to lack of access to relevant information to complete assignments. Consequently, poor quality term papers are produced. Lecturers are equally frustrated due to information overload resulting in poor research work.

Psychologically, as people are faced with the growing levels of information overload, the inability to make clear and accurate decisions can increase their stress level. Part of the problem of information overload can be traced to interruptions in the workplace. Interruptions include incoming e-mail messages and phone calls – all of which break the mental focus and redirect it to the source of interruption. The person has to deal with the interruption, and then redirect his attention back to the original task (New World Encyclopedia, 2017).

2.1.4 *Ways of minimizing Information Overload*

The problem of information overload is a serious global problem that requires urgent solution. Aguolu and Aguolu (2002) observed that, in the face of this information overload, researchers and professionals now appear to be more concerned with finding more efficient ways of securing and processing information. This problem can be minimized by effective management of information. Information should be systematically ordered and organized for effective management and retrieval.

2.1.5 *Technological solution*

Advancement in Information Communication Technology (ICT) has succeeded in its purposes of providing users with more information with which to make better decisions but accessibility (especially in the developing countries) is still a major problem. Technological solution involves developing effective computer-based Information Storage and Retrieval System (IS&RS) to store and access resources in the internet. These efforts are attempts to accommodate rapid growth in the amount of information and the need to provide access to it. These technologies are designed to enhance user's ability to filter and manage information, that is, to get the right information into the right hand, and block out unnecessary data that are irrelevant to the task at hand (Foley, 1995).

Technology may not solve every case of information glut. In fact, some authors do not have much faith in technological solutions. Foley (1995) and Gitlin (1997) warned against relying too heavily on technological solutions. According to them, technological solutions are incomplete and partial. For Waddington (1995), technologies for managing information are often the problem, not the solutions. Still commenting on the inadequacy of the technological solution to information glut, Martin and William (1988) observed that technology that promised so much in the way of controlling information output has succeeded merely in aggravating the

problem. McIlroy (2010) observed that the internet easily defeats advanced filters, delivering millions of words per second to brains that can process only 10 words per second. Many have mistakenly placed their trust in the technology rather than the ability to think about the causes of information overload and to determine thoughtful solutions (Brown and Duguid, 2000).

In the developing countries, access to internet resources will be enhanced when the cost of subscription to Internet data bases is reduced as a result of competition and also when more indigenous technical experts are trained to maintain the systems. Regular electricity supply in these countries will also help to minimize the problem.

2.1.6 Minimizing information overload in the library

The librarians lack the fore knowledge as to the information resources that will most likely meet a particular user's information need. Consequently, they systematically organize the content of the library in such a way as to enhance the chances of retrieving relevant items for the user at the search stage. Foskett (1979) emphasized that our organization must permit us to eliminate what is not wanted. The records of the content of the library is referred to as Information Storage and Retrieval System (IS&RS). Information Storage and Retrieval System (IS&RS) stores records in a file, accepts requests for information, searches the file for data relevant to each request, retrieves the data and provides the information to the user. The purpose of the system is to help access and use knowledge that has been recorded. An effective IS&RS stores large number of records and retrieves desired records rapidly and accurately in response to requests (Encyclopedia Americana, 1995). The term is usually used to describe a computer-based system, but libraries are examples of institutions that use manual and computer-based information storage and retrieval methods. These tools include library catalogue, subject classification, and shelve lists (ordered arrangement of books on shelves). Also, included are bibliographies, indexes, and abstracts for subject covered by the collection. Each of these access devices can be either manual or computerized or both. They are access tools and are very vital for they enable users to gain access to the physical items in the collection through different approaches such as authors, subjects, and titles.

Foskett (1979) referred to Information Retrieval System (IRS) as library "corporate memory" which he likened to individual memory which when it fails will be unable to deliver the required information. Kiran (2016) asserted that one of the best examples of information retrieval system (IRS) is the library system where information is stored, processed, organized and retrieved on the demand of its users. A library whose "corporate memory" (IRS) is inadequate will fail in its purpose of leading users to the particular resources in the collection. Consequently, inadequate information retrieval system leads to information glut in the library and other information centers. These access tools, where efficient, reduce information anxiety among users. Nelson (1995) stressed that users searching for information want to maximize the number of items found that are highly relevant to their work. This raises the concepts of recall and relevance. Recall is the number of information recalled during a search process that is highly relevant in solving the immediate problem. Relevance is what the user desires most. Thus, the IRS in use should be efficient enough to ensure higher relevance during search activities. But it should be noted that relevance is a relative concept, for what is relevant to one user may be irrelevant to another user.

It is equally important to ensure that the information retrieval system in use does not have a built-in tendency to increase human errors. Errors have negative effects on both recall and relevance. Foskett (1979) emphasized that human errors in information retrieval systems introduce their own particular kind of noise. Equally important is the specificity of the system, that is, the extent to which the system (IRS) allows us to be precise in specifying the subject of the document being processed. The higher the specificity (at the processing stage) the higher the chances of achieving a high relevance (at search stage). Updateness, arrangements and ease of use are some of the other factors to be considered when evaluating information retrieval systems. It should be noted that information retrieval systems are never 100% efficient.

2.1.7 User education

This is another important way to enhance user's access to materials in the library. A library may have the most efficient and effective access tools and devices but without educating its users properly on their usage, the purpose for which these were intended will be defeated. Consequently, librarians should provide bibliographic instruction to their users to enable them utilize these tools effectively to find and locate information for their needs by themselves. Users still need to be guided in their efforts to retrieve relevant information from the library. Library staff should be willing to assist whenever users approach them for such assistance. By doing so, they will be promoting the library and its services. Equally, staff should facilitate users' access to information by processing and shelving materials promptly.

3.0 Conclusion

Information overload is a situation in which information users are overwhelmed by the speed of information generation especially in the developed nations and in which access to available information is limited especially in the developing countries. In the libraries in the developing countries, lack of systematic organization of resources, misfiling, misshelving, and unfriendly attitude of staff towards users, lead to information overload. Users equally contribute to the problem for some of them lack the necessary skills and intellectual abilities to

effectively use access tools and aids to access and retrieve relevant information.

In order to minimize this problem, libraries should organize library resources and provide efficient information retrieval tools that will enable users access information available in the library. It should be noted that no information retrieval system is 100% efficient. Thus, users still need to be guided. Librarians should also embark on users education activities to facilitate their access to materials in the library.

References

- Aguolu, C.C. and Aguolu, I.E. (2002). *Libraries and Information Management in Nigeria: Seminar Essays on Themes and Problems*. Maduguri: Ed-Linform Services.
- Aiyepeku, W. A. (1989) *Information Priorities for Organizational Effectiveness*. A Paper Presented at The National Workshop on Information Dissemination and Crisis Management in Organizations. Ibadan: University of Ibadan, 24 - 27th July, pp 1-24.
- Brown, J. and Duguid, P. (2000). *The Social Life of Information*. Boston: Harvard Business School Press.
- Encyclopedia American (1995). International Edition. New York: Grolier Inc.
- Feather, J. (1998) *The Information Society*. 2nd ed, London: Library Association.
- Foley, J. (1995) *Managing Information: Infoglut*. <http://www.informationweek.com/551/51mtinf.htm> (Accessed on 15 February, 2015).
- Foskett, A. C. (1979) *The Subject Approach to Information*: 4th ed. London: Clive Bingley.
- Gitlin, T. (1997) *Dealing with an Information glut*. <http://www.sims.berkeley.edu:8000/courses/is/206/zf97/groupE/infoglut.html>. (Accessed on 25 March 2015).
- Heylighen, F. (1999). *Change and Information overload: Negative effects*. <http://www.ccism.pc.athabascau>. (Accessed on 10 January 2015).
- Ifijeh, G. I. (2010). *Information explosion and university libraries: Current trends and strategies for intervention*. *Chinese Librarianship: an International Electronic Journal*, 30. URL: <http://www.iclc.us/cliej/cl30doraswamy.pdf> (Accessed on 11 March 2017).
- Kiran, P. B. (2016) *Information retrieval: search process, techniques and strategies*. *International Journal of Next Generation Library and Technologies*. 2 (1): 1-10.
- Lwoga, E. T., Chimwaza, G., Aronson, B. and Vent, O. (2007). *Building Science Information fluency in African universities: How libraries and researchers are benefitting from improved access to science scholarship*. World Library Conference and Council 19-23 August 2007, Durban, South Africa.
- Martin, W.J. and William, J. (1988). *The Information Society*. London: Aslib.
- McIlroy, T. (2010) *The Information Explosion (and its implications to the Future of Publishing)* http://www.thefutureofpublishing.com/images/uploadimages/Information_Explosion-08-15-10.pdf (Accessed on 11 March 2017).
- Nelson, M. R. (1995). *We have the information you want, but getting it will cost you: Being held hostage by information overload*. <http://www.ccism.pc.athabascau> (Accessed on 25 March 2017)
- New World Encyclopedia (2017). *Information explosion*. http://www.newworldencyclopedia.org/entry/information_explosion (Accessed on 27 March 2017)
- Research4life <http://www.research4life.org/category/partner-newsletter/> (Accessed on 20 May 2017)
- Rosenberg, D. (2006). *Towards the digital library in Africa*. *The Electronic Library* 24 (3): 289 -293.
- Strother, J. B. and Ulijn, J. (2012). *Information Overload: An International Challenge to Professional Engineers and Technical Communicators*. Institute of Electrical and Electronics Engineers. John Wiley & Sons, Inc. <http://www.hdr.org/en/reports/global/hdr2001/papers/sagasti-i-i.pdf> (Accessed on 27 March 2017)
- Ugah, A. D. (2007). *Obstacles to information access and use in developing countries*. *Library Philosophy and Practice* (e-journal) Paper 160. <http://digitalcommons.unl.edu/libphilprac/160> (Accessed on 21 June 2017)
- Waddington, P. (1997). *Dying for information? A report on the effects of information overload in the U.K and worldwide*. <http://www.cni.org/regconfs/1997/ukolu-content/report13.html> (Accessed on 25 March 2017)
- Wurman, R. (1989). *Information anxiety*. New York: Doubleday.