Exploring Digital Literacy Competencies among the Library and Information Professionals of Bangladesh: Problems and Recommendations

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ABSTRACT

Purpose- The main purpose of this paper is to explore the digital literacy (DL) competencies among the library and information professionals of Bangladesh.

Design/methodology/approach- The study is based on the review of literature available in secondary sources, and the results of questionnaires that have received from the information professionals of Bangladesh. The respondents are purposefully selected from different information institutions of Bangladesh.

Findings- The overall DL competencies among the information professionals of Bangladesh are not satisfactory.

Research limitations- This study is limited in its scope distributing and receiving questionnaires only from 40 information professionals of Bangladesh. But generalization may not be derived from the findings.

Practical implications- The paper suggests that the government of Bangladesh as well as other higher authorities should generously allocate funds, should conduct training programs on ICT, can recruit skilled digital literate persons, etc.

Originality/value- The paper investigates the original views of library and information professionals regarding on DL competencies among the information professionals of Bangladesh.

Keywords: Digital literacy, Information Communication Technology (ICT) literacy, Information Technology (IT) literacy, Computer Technology literacy, Bangladesh.

INTRODUCTION

Digital literacy (DL) is increasingly being recognized worldwide as a panacea for functioning effectively in an emerging electronic environment. With DL, one can, among other things, gain access and make use of Information Communication Technology (ICT), enhance lifelong learning and adapt to changing skills requirements. Moreover, a digital literate workforce is capable of enhancing an economy's competitiveness. Similarly, the level of digital awareness and skills are crucial to the deployment and use of a variety of ICT. Digital skills are needed so that the technologies put in place can be maintained or adapted to local use, from which greater economic advantages can be derived. Digital literacy is also vital for reaping the greatest advantages from the emerging digital era (Mutula and Wamukoya, 2007).

OBJECTIVES OF THE STUDY

This study was carried out with a view to the following objectives:

- to present the conceptual framework of DL;

- to explain the importance of DL;

- to explore the competences of DL;

- to find out the present status of DL among the information professionals and their problems of DL competences in Bangladesh; and

- to put forward some recommendations to increase the competences of information professionals of Bangladesh.

METHODOLOGY OF THE STUDY

This study is based on primary data gathered through a questionnaire, interviews and observations. A pre-structured questionnaire (Appendix-1) was prepared with both open & close-ended questions to collect data on different variables concerning the articles. Furthermore, the author has gone through a lot of national and international articles and books on the related topics that have been used as secondary source.

To carry out the study, 40 questionnaires were sent to the information professionals of different libraries and Information centers in Bangladesh and the rate of the received questionnaires are 100% that means that 40 questionnaires were received and the researcher personally went to the information institutions to gather data.

THE CONCEPT OF DIGITAL LITERACY (DL)

DL is still new and difficult to define because of the constantly changing nature of ICT. However, DL may best be understood in the context of information literacy. Information literacy is defined in different ways in

the literature, but the most comprehensive definition is perhaps that provided by the Association of College Research Libraries (2000). It defines information literacy as a set of abilities requiring individuals to determine the extent of information needed, access the needed information effectively and efficiently; evaluate information and its sources critically, incorporate selected information into one's knowledge; use information effectively to accomplish a specific purpose; understand economic, legal and social issues surrounding the use of information; access and use information ethically and legally; manage and maintain information; have knowledge of using different information resources; organize information; provide means of access to information; search for information; and gather, evaluate and use information.

DL has come to be used interchangeably with other terms, such as ICT literacy, IT literacy and computer literacy. Broadly defined, DL refers to the ability to use internet dependent applications and non-internet dependent applications. Internet dependent applications include, among others, networked environments encompassing a range of multimedia communication technologies, interactive and connected environments, e-mail, chatting, surfing and blogging. Non-internet dependent applications include, for example, standalone computers and simple data entry devices, such as Microsoft applications, desktop publishing, videogames and mobile phones, to mention but a few (Mutula and Wamukoya, 2007).

The concept of DL is variously defined in the literature. Some of those definitions are as follows:

- The ability to use computers and other technology to improve learning, productivity and performance (US Department of Education, 1996:5).

- Knowing some basics of ICT, such as saving and opening a file, using a word processing program and sending or receiving e-mail for starters; having some sort of level of comfort around computers rather than having fear or a feeling of foreboding (New York Times Company, 2006).

- The ability to use digital technology, communications tools, and/or network to access, manage, integrate, evaluate and create information in order to function in a knowledge society (International ICT Literacy Panel, 2002).

- Knowledge about what technology is, how it works, what purposes it can serve and how it can be used efficiently and effectively to achieve specific goals (Trilling and Hood, 1999; International Technology Education Association, 2000).

BENEFITS OF DIGITAL LITERACY (DL)

The benefits of DL include the followings:

Economic Growth:
DL can enhance economic growth for ICT-dependent enterprises.

Bridge the digital divide:
DL can enhance ICT transfer from developed to developing countries to bridge the digital divide.

Improved the quality of life:
It improves employability and quality of life in a digital environment.

Ensuring learning process:
DL ensures quality and efficiency of the learning process.

Enhance productivity:
DL can enhance productivity through use of technology.

Access to information:
DL can enhance access to information on the internet for timely decision making.

E-commerce and enhancing business opportunities:
DL can provide benefit from e-commerce and enhancing business opportunities and productivity.

Attracting foreign investment:
DL can attract foreign direct investment because of the presence of requisite skills.

Enabling to think, write, and learn:
DL can enable youngsters to think, write, learn, and solve problems; and

Boosting motivation:
DL can boost students' motivation to learn.

DIGITAL LITERACY (DL) COMPETENCIES

The competencies that are associated with each level on the DL continuum are described ender each level below (Mutula and Wamukoya, 2007):

*Foundational DL competencies***:**
This form of literacy is related to a variety of foundation skills, such as the ability to learn to communicate and to analyze and solve problems.

Basic DL competencies:

The competencies at this level largely relate to knowledge about computers and other related technologies. DL competencies at this level would include, among other things, an understanding of computer components and what they do; knowledge of input devices, processing and storage; knowledge of how to start and switch off a computer; restarting the computer; understanding the desktop, such as reducing, resizing and closing windows; knowledge of various types of text-based or graphical user interface operating systems; knowledge of specific applications, such as MS Word, MS Excel, MS Power Point, MS Access and MS Outlook and their uses; knowledge of uses of computers at home, such as household accounts, e-mail, internet surfing, and use of computers in supermarkets.

Intermediate digital literacy (DL) competencies:

The DL competencies expected at this level relate to comprehending how the various features within applications can be used. The individual can, for example, understand basic directory and folder structure, create directories and subdirectories, copy and paste files, make backup copies, delete files from directories, and use a printer. Within the MS Word environment, the individual will be able to create a document; understand the difference between 'save' and 'save as'; close the documents; open, modify and save an existing document; open several documents simultaneously; change display modes; copy and move files between active documents; apply existing styles to a document; modify document margins; create tables, pictures and images; change fonts and use italics; change line spacing; add borders, indents and page numbering; use spell check; preview and print document. With regard to e-mail applications, the individual may be able to open received mail; create message and send it; open the inbox; determine whether messages have not been read; attach files to a message; use reply to sender option; forward message; delete message; and sort messages by name and by date.

Advanced DL competencies:

DL competencies associated with this level will include the ability to organize information using various software applications; having knowledge of the various tools needed to gain access to information such as digital libraries, web-based OPACs, online journals, online reference sources, search engines and what they provide; and the ability to search for information on the internet and navigate through the Web.

Technical DL competences:

These are technical skills related to ICT itself, which extend beyond the ICT sector to the economy as a whole. These skills may relate to

hardware, software, management, policy and regulatory issues.

DL Proficiency:
Individuals with proficient DL are those who, in addition to have having a wider understanding of specific digital technology applications, are also able to understand the various issues involved in the design, implementation and use of such technologies; have knowledge of various online resources or internet search engines, e-mail and online databases; are able to formulate search plans to gather information from online resources; organize, apply and communicate information using various digital technologies; understand many of the ethical, legal and socioeconomic issues surrounding information and information technology; acknowledge the use of information sources in communicating the product or performance using standard citation formats; revise information-gathering strategies that prove to be ineffective using Boolean algebra; use digital technology to facilitate evaluation of the different information retrieved; present information clearly and persuasively using a range of technology tools and media.

RESULTS AND DISCUSSIONS OF THE STUDY

Large majorities (62.5%) of the respondents are male and 37.5% of respondents are female, which is not surprising as the profession is dominated by male information professionals. Almost half of the respondents are between 36 and 45 years old. Figure 1 indicates that with the remaining ones almost evenly split between the age brackets 26-35 years and 46-55 years.

In terms of educational qualifications, most of the respondents (87.5%) have a master's degree in library and information science. In addition to the degrees, some of them have also attended workshops or continuing education courses in order to update their knowledge.
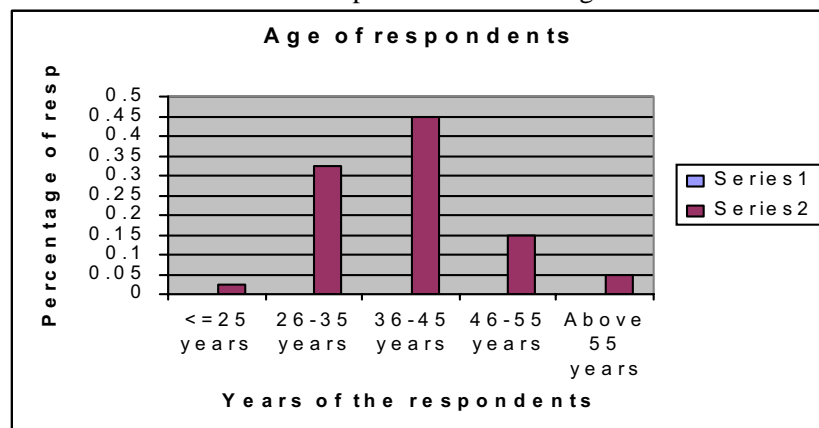

Figure 1: Age of the respondents

Basic DL competences:

The basic DL competences of the library and information professionals are accessed by the Table 1. It is found that 42.5% of respondents of the information professionals in Bangladesh have the average ability of using Microsoft office (MS Word, Excel, Power point, etc), most of the respondents (50%) have low ability of using Local Area Network (LAN), 47.5% have low ability of using Wide Area Network (WAN), 45% of the information professionals have low ability of using Metropolitan Area Network (MAN) and finally, 45% of the respondents of the information professionals of Bangladesh have average ability to properly know about the basic of computer as well as digital literacy that is indicated on the table 1:

Table 1: Basic digital literacy competences (n=40).

Digital literacy abilities exhibited	Very Low	Low	Average	High	Very High
Ability of using Microsoft Office (MS-Word, Excel, PowerPoint, etc)	12.5%	25%	42.5%	12.5%	12.5%
Ability of using LAN	22.5%	50%	15%	12.5%	0%
Ability of using WAN	25%	47.5%	12.5%	10%	0%
Ability of using MAN	27.5%	45%	10%	7.5%	0%
Ability to properly know about the basic knowledge of computer as well as digital literacy	10%	7.5%	45%	17.5%	5%

Intermediate DL competences:

The table 2 shows that half (50%) of the respondents of the information professionals of Bangladesh have average ability to use online public access catalogue, 30% have high and only 12.5% have very high ability to use online public access catalogue. Also, 47.5% of respondents have average ability to use online journals, 32.5% of the information professionals have high ability to use online journals. Again, 37.5% of the information professionals of Bangladesh have high ability to use online references and 37.5% of respondents have also average ability to use online references. Half of the information professionals have high ability to use online search and 37.5% have average ability to use online search. Finally, most (75%) of the respondents of the information professionals of Bangladesh have high ability to use online browse.

Table 2: Intermediate digital literacy competences (n=40).

Digital literacy abilities exhibited	Very Low	Low	Average	High	Very High
Ability to use online online Public Access Catalogue (OPAC)	0%	7.5%	50%	30%	12.5%
Ability to use online journals	7.5%	12.5%	47.5%	32.5%	0%
Ability to use online references	12.5%	12.5%	37.5%	37.5%	0%
Ability to use online search	0%	5%	37.5%	50%	7.5%
Ability to use online browse	0%	0%	17.5%	75%	7.5%

Advanced DL competences:

The table 3 indicates that half of the information professionals of Bangladesh have high ability to use internet. It is observed that 62.5% of respondents have high ability to use e-mail and 47.5% have high ability to use www and only 10% have very high quality. Half of the respondents have average ability of using newsgroups. It is also observed that most of the information professionals of Bangladesh have average ability to use File Transfer Protocol (FTP) but half of the respondents have very low ability of blogging. It is found that 47.5% have very low ability to use Hypertext Markup Language (HTML) and 50% of respondents have also very low ability to use web page design. Similarly, half of the information professionals of Bangladesh have very low ability to library web page design. 50% of respondents have very low ability to use library portal. It is scrutinized that half of the information professionals of Bangladesh have high ability of surfing. Finally, 37.5% of the respondents of the information professionals of Bangladesh have high ability of using search engines, 25% have average and only 12.5% of respondents have very high ability of using search engines.

Table 3: Advanced digital literacy competencies (n=40).

Digital literacy abilities exhibited	Very Low	Low	Average	High	Very High
Ability to use internet	0%	12.5%	25%	50%	12.5%
Ability to use e-mail	0%	5%	25%	62.5%	7.5%
Ability to use www	0%	12.5%	30%	47.5%	10%
Ability to use newsgroups	5%	20%	50%	20%	5%
Ability to use FTP	5%	25%	62.5%	7.5%	0%

Ability to use telnet	50%	25%	12.5%	7.5%	5%
Ability of blogging	50%	37.5%	12.5%	0%	0%
Ability to use HTML	47.5%	14%	12.5%	5%	0%
Ability to web page design	50%	37.5%	12.5%	0%	0%
Ability to library web page design	55%	37.5%	7.5%	0%	0%
Ability to use library portal	50%	25%	12.5%	12.5%	0%
Ability of surfing	0%	12.5%	37.5%	50%	0%
Ability of using search engines	12.5%	12.5%	25%	37.5%	12.5%

Advanced searching DL competences:
The table 4 reveals that half (50%) of respondents of the information professionals of Bangladesh have average ability of retrieving, 25% have high, 5% of have very high, 12.5% have low and only 7.5% have the ability of retrieving. It is observed that most of the respondents have average ability, 10% have high, and 5% have low and 10% have very low ability of using search techniques. It is found that 57.5% of the respondents have average ability to use advanced search techniques, 17.5% have high, only 5% have every high, 12.5% have low and 7.5% of the information professionals of Bangladesh have very low ability to use advanced search techniques. It is also observed that 62.5% of respondents have average ability of using Boolean operators, 15% have high, only 2.5% have very high, 15% have low and only 5% of the respondents of the information professionals of Bangladesh have very low ability of using Boolean operators. It is scrutinized that most (75%) of the information professionals have low ability of using truncation, 12.5% have very low, only 7.5% have average and 5% of respondents have high ability of using truncation but no information professionals have very high ability of using truncation. Finally, it is indicated that 72.5% of respondents of the information professionals of Bangladesh have low ability to use proximity searching.

Table 4: Advanced searching digital literacy competences (n=40).

Digital literacy abilities exhibited	Very Low	Low	Average	High	Very High
Ability of retrieving	7.5%	12.5%	50%	25%	5%
Ability to use search techniques	10%	5%	75%	10%	0%
Ability to use advanced search techniques	7.5%	12.5%	57.5%	17.5%	5%
Ability to use Boolean operators (AND, OR, and NOT)	5%	15%	62.5%	15%	2.5%
Ability to use Truncation	12.5%	75%	7.5%	5%	0%
Ability to use proximity searching	17.5%	72.5%	7.5%	7.5%	0%

PROBLEMS OF DIGITAL LITERACY COMPETENCIES AMONG THE INFORMATION PROFESSIONALS IN BANGLADESH

The followings are the problems of using DL among the information professionals in Bangladesh:

Administrative barriers:
This problem is much more acute than other problems. Administrators, policy makers, and government executives are not fully aware of the importance of ICT as well digital technologies. Moreover, information professionals have failed to make its importance clear.

Lack of support from the higher authorities:
Lack of reliable supports (financial, technical, infrastructural, institutional, and administrative, etc.) from the government as well as higher authority creates severe problems to introduce digital literacy among the information professionals of Bangladesh.

Lack of computer literate professionals:
Although computer is becoming popular in Bangladesh, still we have computer literate professionals. Many senior and old information professionals do not know how to operate computer.

Uninterruptible internet connection:
Our dial up connection as well as broadband connection frequently interrupted due to technological disruptions of service provider and so

often cables are cut down by the theft of wires.

Lack of easy internet access:
Due to prohibitive costs, it is very difficult to easily access to the internet.

High cost of infrastructure development:
Although digital literacy is a must for all the information professionals of Bangladesh, but it requires a good infrastructure facilities like adequate number of workstations with internet connection, high bandwidth, laser printers, sometimes need dedicated web servers, modem, UPS, etc. are very costly and many libraries can not afford the cost.

Lack of skilled manpower:
The information professionals of Bangladesh do not have adequate skills to handle computers and other information technologies.

Lack of ICT related knowledge:
Library and information professionals of Bangladesh do not have proper knowledge about ICT as well as other digital technology related knowledge.

Lack of infrastructure:
Inadequate physical facilities of the libraries and information centers of Bangladesh hamper the growth of digital technologies.

Lack of financial support:
Inadequate financial support has made the possibility of ICT application in the information institutions of Bangladesh much more complex.

Lack of experiences, motivation and confidence:
There is a severe shortage of experiences, motivations and confidences of the information professionals of Bangladesh for adopting digital technologies.

Psychological problems:
The reluctance of the information professionals of Bangladesh to accept new digital technologies hinders the development of ICT based as well as digital libraries.

Lack of proper planning:
To implement digital technologies or ICT in the libraries and information institutions of Bangladesh, need proper long term as well as short term planning.

Lack of ICT training programs:
To increase the digital literacy skills of the information professionals of Bangladesh need continuous training and orientation programs.

Lack of standards:
There is no international standard among the library and information professionals of Bangladesh.

SUGGESTIONS FOR OVERCOMING THE DIGITAL LITERACY PROBLEMS FOR THE LIBRARY AND INFORMATION PROFESSIONALS IN BANGLADESH

The following suggestions can be taken into consideration for implementing ICT and overall development of public libraries in Bangladesh:

- The Government of Bangladesh should allocate sufficient funds

- Government should generously allocate funds to introduce ICT in the library and information profession.

- Library and information science teaching and training institutions should introduce different types of training programs for unskilled library professionals. The training programs should include basic things such as cataloging (both manual and electronic), classification, bibliography, indexing and abstracting, electronic information delivery, public relation, e-mail, internet, so that the unskilled library professional can handle information efficiently.

- The library   associations of Bangladesh should organize seminars, workshops, etc. to create awareness among librarians about the current development and technologies in library field.

- The government can open library and information science department in different government and private colleges and universities to build up more efficient library professionals. It may be noted that only two government universities are running the library and information science course (both Honors and Master degree).

- For smooth management of libraries proper rules & regulations should be formulated as soon as possible and standards should be maintained.

    International cooperation is a must in library field. The government and the library authority should contact with the international body for the development of the libraries.

- The rank and status of librarians and information professionals should be elevated and for this purpose government should take proper initiatives as soon as possible.

- Government and concerned authority should cooperate each other for the development of digital literacy competences of the information professionals of Bangladesh.

- The library authority should aware of the changes in ICT in the world.

- The Government can recruit new ICT professionals.

- The govt. can introduce a pilot project to implement ICT.

- The concerned library authority and other ICT institutions should provide a comprehensive training to the library staff.

- Proper planning is a must to improve the digital literacy competences among the information professions of Bangladesh.

CONCLUSION

The library field has been facing negligence from the very beginning of library movement in Bangladesh. The librarians and the concerned personnel do not get their legal status and facilities. For this reason, they are not active in their field. This problem impedes the gradual development of libraries in Bangladesh. In this age of ICT the library services should be redesigned to meet the users' needs and to provide modern information services facilitated by ICT. As libraries in developed countries have introduced lot ICT facilities to its users, now this is the time for the developing countries' libraries to follow the developed countries and adopt new technological facilities. The present digital literacy competencies among the information professionals of Bangladesh are not satisfactory. The government of Bangladesh as well as other institutions should take necessary steps to improve the knowledge of digital literacy as well as ICT literacy among the information professionals of Bangladesh.

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APPENDIX 1

Questionnaire on accessing digital literacy competences among the library and information professionals in Bangladesh.

1. Name of the information centre:

2. Name of the information professional:

3. Designation of the information professional:

4. Address:

5. Experience:

6. Gender: (a) Male
            (b) Female

7. Age:
        (a) <= 25 years
        (b) 26-35 years
        (c) 36-45 years
        (d) 46-55 years
        (e) Above 55 years

8. Educational qualifications:
    o   Certificate course in ISLM
    o   Diploma
    o   Bachelor

- o   MISLM
- o   Others masters
- o   Mphil
- o   Ph.D.

BASIC DIGITAL LITERACY COMPETENCES

[Note: 1 –very low, 2 –low, 3 –agree, 4 –high, 5 –very high]

Digital literacy abilities exhibited	1	2	3	4	5
9. Ability of using Microsoft Office (MS-Word, Excel, PowerPoint, etc)					
10. Ability of using LAN					
11. Ability of using WAN					
12. Ability of using MAN					
13. Ability to properly know about the basic knowledge of computer as well as digital literacy					

INTERMEDIATE DIGITAL LITERACY COMPETENCES
[Note: 1 –very low, 2 –low, 3 –agree, 4 –high, 5 –very high]

Digital literacy abilities exhibited	1	2	3	4	5
14. Ability to use online Public Access Catalogue (OPAC)					
15. Ability to use online journals					

16. Ability to use online references					
17. Ability to use online search					
18. Ability to use online browse					

ADVANCED DIGITAL LITERACY COMPETENCES

[Note: 1 –very low, 2 –low, 3 –agree, 4 –high, 5 –very high]

Digital literacy abilities exhibited	1	2	3	4	5
19. Ability to use internet					
20. Ability to use e-mail					
21. Ability to use www					
22. Ability to use newsgroups					
23. Ability to use FTP					
24. Ability to use telnet					
25. Ability constructing blogging					
26. Ability to use HTML					

27. Ability to web page design					
28. Ability to library web page design					
29. Ability to use library portal					
30. Ability of surfing					
31. Ability of using search engines					

ADVANCED SEARCHING DIGITAL LITERACY COMPETENCES:

[Note: 1 –very low, 2 –low, 3 –agree, 4 –high, 5 –very high]

Digital literacy abilities exhibited	1	2	3	4	5
33. Ability of retrieving					
34. Ability to use search techniques					
35. Ability to use advanced search Techniques					
36. Ability to use Boolean operators (AND, OR, and NOT)					
37. Ability to use Truncation					

38. Ability to use proximity searching					

Signature:

Date   :