

## ANALYZING DIGITAL LITERACY (DL) OF THE LIS STUDENTS, UNIVERSITY OF NORTH BENGAL, INDIA

Manash Esh

Senior Information Scientist

University Library

University of North Bengal, RajaRammohunpur, DT: Darjeeling-West Bengal-734013

e-mail: [manash@nbu.c.in](mailto:manash@nbu.c.in)

Prof (Dr.) Saptarshi Ghosh

Professor, Department of Library and Information Science

University of North Bengal, RajaRammohunpur, DT: Darjeeling-West Bengal-734013

e-mail: [sghosh@nbu.c.in](mailto:sghosh@nbu.c.in)

### ABSTRACT

The motivation behind this investigation is to look at the three variables of advanced education, digital literacy (DL), for example, level, learning, and aptitudes (or level, knowledge and skills) of the students of library and information science (LIS), University of North Bengal. The examination used the review to explore the philosophy of the survey as an exploration tool. The questionnaire was planned, designed and conveyed to 60 students in the library and Information science; out of 60 understudies, 49 (81.66%) reacted. The finding suggests that the DL level is astute in terms of gender orientation and habitation and distinguishes different DLs between students as well as decision-making DL (Computer) abilities through gender and social foundations.

**Keywords:** Digital Literacy Level, Digital Literacy Knowledge, Digital Literacy Skills, LIS, Internet, Computer, DL

### INTRODUCTION

As illustrated in Wikipedia, digital literacy is the ability of the individual to find, evaluate, and compose clear information through writing and other media on various digital platforms. It measures the use of grammar, composition, typing and the ability to produce text, pictures, audio and drawings using the technology of the individual. Department of Library and Information Sciences at the University of North Bengal, India was founded in 1991. Since its creation, the department has built up human capital for the state in particular and for society as a whole. This study explores the perceptions of digital literacy (DL) among students in the department and the use of various levels of DL abilities in their academic work. The study focuses on computer literacy, computer skills and Web-related capabilities of students. Efforts have been made to justify how students in this department perceive the basic components of digital literacy. Since digital literacy is a subset of digital sociology, the study attempts to trace a few facets of the nucleus.

### LITERATURE SURVEY.

Although the concept of digital literacy is implicit in all knowledge domains, in-depth studies of digital literacy are most scarce in the existing knowledge pool. Most of the literary mandates known from the developing countries are close to the partial vision of the concept. Digital literacy is an essential skill in understanding, assessing and integrating information into multiple formats or formats of electronic transmission (Pool, 1997). This form of literacy is the key attribute for both academics and professionals (Soyemi, Ojo and Abolarin, 2018; Lea and Jones, 2011). Hains and Wesson's concept of digital literacy (Hains-Wesson, 2017) focuses on literacy instead of digital technologies. The complex interrelations between nondigital literature and technology often disrupt the student's connections with existing literature, being contemporary students more or less digital natives. In this age of the information society, both faculty and students are digitally motivated still they found information overload in the digital world is one of the prime challenges of information management (Shariman, Razak, & Noor, 2013; Koltay, 2011). Digital literacy is the prerequisite in modern education paradigm, whether be it pre-service education for faculties (Istenič Starčič & Turk, 2017) or be it ICT or computer engineering for students (Parvathamma & Pattar, 2013; Elmunsvah, Nur Hidayat, & Patmantara, 2018). New technologies and evolving media are changing the way people, groups and societies communicate, learn, work, and govern (Meyers, Erickson, & Small, 2013). Whilst digital literacy among the young, adults is affirmative, digital exclusion is high in the developing countries and thus covers a variety of inequalities in access to and use of digital technologies (Manžuch, and Macevičiūtė, 2020). Students are still not digital nomads, hence, providing an empirical basis for better understanding of their tacit knowledge relies on personal knowledge ecologies (Jarrahi et al., 2019). Students as computer users spend time daily interacting with digital files and folders, including downloading, moving, naming, browsing, searching, sharing and deleting. The management of these files has been the subject of numerous studies in various areas, but has not been explicitly acknowledged or given particular attention (Dinneen & Julien, 2020).

Earlier studies emphasized information literacy, media literacy, and computer literacy, but digital literacy is something beyond that, as digital tools support and transform the research process in a particular thematic area (Oso Senny Oluwatumbi, 2015). Digital literacy is the dissemination of new technologies and development in ICT, where individuals, groups and society communicate, learn, work and govern (Khan and Waheed, 2015). In analyzing the behaviour of digital information, information retrieval and communication in a digital environment is an appropriate model, using a modified privacy literacy framework, Best Fit (Dijk, 2020). Digital literacy practices, education and training library users to effectively use digital tools to retrieve relevant information. The outcome of digital literacy practices indicates that it is required for the protection of young and young adult students online by providing digital literacy education and essential information filtering (McNicol, 2016). Existing literary mandates reveal that digital literacy has key components that need to be identified using specific survey measures (G. Meenambika, 2015; Hargittai, 2009; Hobbs and Coiro, 2019). Noh (Noh, 2017) examined recent digital literacy assessment indicators, which can be used to assess student digital literacy. Digital literacy can be applied to wave skills as well as to the understanding of data source, source critique, critical theorem and knowledge theory (Cordell, 2013). Digital literacy practice can be applied in higher educational institutions through knowledge audit and benefit analysis to identify core components and their interrelationship for enhancing the capacity and ability to engage completely in the digital society (Littlejohn, Beetham, & McGill, 2012), (Nelson, Courier, & Joseph, 2011) Information professionals can improve their information retrieval skills and berries to information access by applying the knowledge of digital literacy (Khatun, Virkus, & Jakaria Rahman, 2015; Nicholas, D. Williams (1998). More importantly, digital literacy also helps information professionals explore more deeply the acquisition and use of information.

### RESEARCH QUESTIONS

The following study provides a rationale for following the research questions that need to be addressed to delineate the complexities involved in capturing digital literacy by students under observation.

- What is the gender-based level of digital literacy amongst LIS students?
- What is the domiciliary level of digital literacy among LIS students?
- How much digital literacy awareness is among LIS students?
- What are the digital literacy skills in trustworthy computing and Internet literacy among digital literacy students?

### OBJECTIVES OF THE STUDY

The research questions presented above have to be asked with all the necessary objectivity and thus the objectives of the study.

- To determine gender-based digital literacy level among the students, LIS, NBU.
- To determine domicile-based digital literacy levels among the students, LIS, NBU.
- To find out the knowledge of digital literacy and rank order among the students of LIS, NBU
- To find out the difference in the purposes of using digital literacy skills both in general computing and in internet literacy and their ranking order among the students of LIS, NBU.

### SCOPE AND LIMITATIONS OF THE STUDY

This work is a case study only on literacy proficiency, literacy knowledge, digital literacy skills of students at Library and Information Science, University of North Bengal. The questionnaire, findings of the study and validity of inferences drawn from this study are relevant in other disciplines in other universities subjective to the controlled environment and extraneous factors embedded in the study itself.

### METHODOLOGY

This study was based on five indicators from the Global Digital Literacy Framework.

1. Information and data literacy, 2. Communication and collaboration, 3. Digital content creation, 4. Safety, 5. Problem-solving.

The population included in the study included 145 students from the Library and Information Science Department of the University of North Bengal, India for the 2018-2020 session. This study adopted mixed-method model research, including survey as the base and interviewing technique as supplementary action. The sample size was drawn using Cochran's sample size formula where "e" is the desired level of precision (i.e., the margin of error), "p" is the (estimated) proportion of the population, which has the attribute in question, "q" is 1 - p. The z-value is found in a Z table. Consequently, the sample size to be determined in the study was 59 to a  $n_o = \frac{Z^2 pq}{e^2}$  95 percent confidence level, and the margin of error was 3.00. The questionnaire, which included five indicators from the World Digital Framework, was distributed to 60 students. The survey was completed by 49 students, resulting in a response rate of 81.66%. Among the feedback received, 26.5% were male students and 74.5% were female students. For data collection, the study used a four-point scale for digital literacy

awareness as Novice=1, Beginner=2, Advanced=3, Competent, proficient expert= 4, the five-point scale for qualitative measurement as Excellent=1, Good=2, Average=3, Fair=4, Poor=5 and the three-point scale for proficiency measurement as High=1, Average=2, Low=3.

### DATA ANALYSIS

Analysis of the data collected through a questionnaire designed for the students of Library & Information Sciences at the University of North Bengal. The data analysis was based on the 49 responses received against distributed 60 questionnaires. Statistical measures were taken to substantiate the data from Likert-type Scales and narrative analytics were made the data collected.

Table 1- Mean, SD and F values of the gender of students for digital literacy level.

Gender	N	Mean	Std. Deviation
Male	13	2.2308	0.43853
Female	36	2.0833	0.36839
Total	49	2.1224	0.38905

### ANOVA

Digital Literacy Level	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.208	1	.208		
Within Groups	7.058	47	.150	1.383	.246
Total	7.265	48			

Figure 1- Graphical representation of mean of digital literacy level vs. gender.

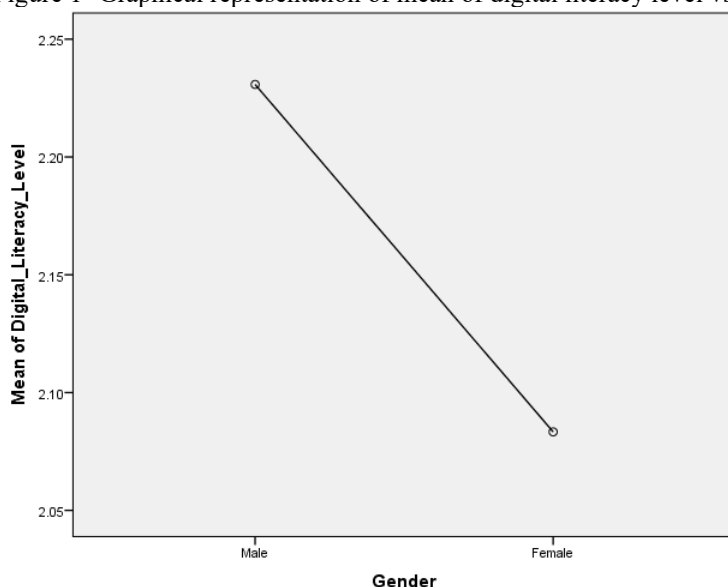


Table 1 and Figure 1 show that the average level of digital literacy among female students (2.0833) was minimal relative to male students (2.2308). It, therefore, showed that the digital literacy level of men was higher than that of women. Also ( $F=1.383, p<0.05$ ) at a 5 percent significance level. That assumes a distinct level of digital literacy for both men and women.

Table 2- Mean, SD, and F values of Domicile of the students concerning Digital literacy level.

Domicile	N	Mean	Std. Deviation
Rural	26	2.0769	0.39223
Urban	23	2.1739	0.38755
Total	49	2.1224	0.38905

**ANOVA**

Digital Literacy Level	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.115	1	.115		
Within Groups	7.151	47	.152	.755	.389
Total	7.265	48			

Figure-2: Graphical representation of mean of digital literacy level vs. Domicile.

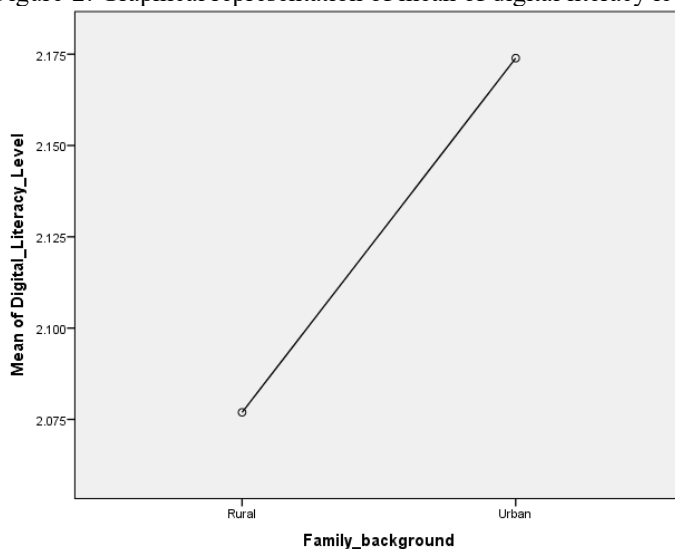


Table 2 and Figure 2 indicate that the average level of digital literacy among rural students is a minimum (2.0769) versus urban students (2.1739). It showed that urban students had a high level of digital literacy compared with rural students. Also ( $F=.755, p<0.05$ ) at a 5 percent significance level. This implies a separate level of digital literacy in rural and urban communities. It emerged that the result difference is indirectly linked to rural and urban areas.

Table 3- Identifying digital Literacy knowledge among the students.

Sl. No.	The students' knowledge	Mean	SD	Rank
	The Internet	2.0417	.94437	3
	Microsoft Word	2.4082	1.11651	9
	Microsoft Excel	2.5510	1.10040	10
	Microsoft PowerPoint	2.3469	1.03181	8
	Email	2.1020	1.02561	5
	Chat rooms	2.0816	.99659	4
	Cellular Phone	1.9388	.89926	2
	MP3 player	1.7959	.91241	1
	Games machine	2.6531	1.10964	11
	Digital Camera	2.2653	1.05624	7
	DVD player	2.1633	.98630	6
	Android IOS	2.2653	1.27108	7
	<b>Average</b>	<b>2.2177</b>	<b>1.0375</b>	

Table 3 indicates that one of the major objectives of the study was to understand the digital literacy skills of undergraduate students. The statements mentioned in the above table were on the five-point scale from excellent-

1, good-2, average-3, fair-4, poor-5. Table 3 shows the mean and SD scores of digital literacy skills among LIS students at the University of North Bengal. From the discussion above, it can be summarized that the total average value of all digital literacy knowledge metrics was 2.2177, with a gap of 1.0375. It indicates that study students have above-average knowledge of digital literacy skills and knowledge.

Table 4- Digital Literacy Skills (Computer) among the students

Sl. No.	Digital literacy skills (Computer)	Mean	SD	Rank
	Open & save file	1.2857	0.45644	1
	Draw pictures	1.4898	0.50508	2
	Print documents	1.5510	0.76543	3
	Copy, transfer file	1.4898	0.64944	2
	Search in OPAC	1.7755	0.71488	4
	Write research paper using words	1.8367	0.77317	5
	Male PowerPoint presentation	1.9592	0.78949	7
	Make a spreadsheet	1.8776	0.85714	6
	<b>Average</b>	<b>1.6581</b>	<b>0.68888</b>	

Table 4 shows that one of the main objectives of the study was to find out about the computer skills of the students taking part in the study. The statements mentioned in the table above are on a three-point scale from High-1, Average-2, Low-3. The frequency of each statement was multiplied by the corresponding scale value compared to the total score calculated by summing all the values of the product. The mean value calculated by dividing the total score by the size of the sample, based on the mean value of the ranks, was assigned as shown in Table 4. It showed the mean and SD scores of digital literacy skills among DLIS students at the University of North Bengal. From the above discussion, it was summarised that the total average score value of all computer skill parameters was 1,6581575, with a deviation of 0,6888825. It shows that students under study have more than average computing skills. Apart from the eight skills others were counted as the value was 0.

Table 5- Digital literacy skills (Internet) among the students

Sl. No.	Digital literacy skills (Internet)	Mean	SD	Rank
	Web Browsing	1.4082	0.57440	2
	Download files from the internet	1.4694	0.61583	3
	Write and send an e-mail	1.3878	0.60609	1
	Attach file with e-mail	1.5714	0.67700	4
	Search online database	1.6327	0.66752	5
	Video conferencing	1.7143	0.67700	6
	Search in WebOPAC	1.8163	0.69742	7
	<b>Average</b>	<b>1.57142</b>	<b>0.64503</b>	

Table 5 shows that one of the main objectives of the study is to know the computer skills of the students undergoing the study. The statements were indicated in the table above on the three-point scale of High-1, Average-2, Low-3. The frequency of each statement was multiplied by the corresponding scale value compared to the total score calculated by summing all the values of the product. The mean value was calculated by dividing the total score by the size of the sample, based on the mean value of the ranks as shown in Table 5. It showed the mean and SD scores of digital literacy skills among LIS students at the University of North Bengal. From the above discussion, it can be summarised that the total average score value of all internet skills parameters was found to be 1,57142, with a deviation of 0.64503. It indicates that students having fair knowledge of internet technology have more than an average understanding of their skills.

## 8. CONCLUSION

The aim of the study was to determine the levels, knowledge and skills of LIS students and their understanding of digital literacy. DL builds students' ability to use digital technology to generate positive social activities. Digital culture ensures the development, distribution and sharing of data, as well as the optimisation of data processing capacities. Based on its specific study, it appears that the LIS students of the department have competencies and knowledge of digital literacy and a distinct level of digital literacy in terms of gender and domicile. It also indicates that students have average proficiency in computer science and the Internet. Students are required to be nourished with a digital environment to guide them with the full connotation of digital literacy for a greater apprehension of digital knowledge.

## 9. REFERENCES

- Alagu, A., & Thanuskodi, S. (2019). Bibliometric Analysis of Digital Literacy Research Output: A Global Perspective. *Library Philosophy & Practice*, 1–19. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=135202989&site=ehost-live>
- Carter, Stacy L (2010). Instruments for Evaluating Social Validity. In *The Social Validity Manual*. Retrieved from: <https://www.sciencedirect.com/topics/psychology/likert-type-scale#:~:text=The%20Likert%2Dtype%20rating%20scale,a%20moderate%20level%20of%20acceptability.>
- Cordell, R. M. (2013). Information Literacy and Digital Literacy. *Communications in Information Literacy*.
- Dijk, Jan. (2020). *The digital divide*. Cambridge, UK: Polity, 208 pp, ISBN 9781509534456.
- Dinneen, Jesse David and Julien, Charles-Antoine (2020). The ubiquitous digital file: A review of file management research. *Journal of the Association for Information Science and Technology*. 71;1; <https://doi.org/10.1002/asi.24222>
- Elmunsvah, H., Nur Hidayat, W., and Patmantaras, S. (2018). Digital Literacy Skills of Informatics Engineering Education Students as the Basis for Online Learning Implementation. *Proceedings - 2018 International Seminar on Application for Technology of Information and Communication: Creative Technology for Human Life, ISEMANTIC 2018*, 0, 257–260. <https://doi.org/10.1109/ISEMANTIC.2018.8549753>
- G. Meenambika, M. & S. M. (2015). Digital Information Literacy in RRASI Engineering College. *International Journal of Library Science and Research (IJLSR)*, 5 (2), pp. 13-22. Retrieved from [http://www.tjprc.org/view-archives.php?year\\_2015\\_26\\_2&id=40&jtype=2&page=2](http://www.tjprc.org/view-archives.php?year_2015_26_2&id=40&jtype=2&page=2).
- Hains-Wesson, R. (2017). Discipline-specific knowledge and capabilities, communication skills Digital literacy Critical thinking Problem-solving Self-management Teamwork Global citizenship, 13.
- Hargittai, E. (2009). An update on the survey measures of web-oriented digital literacy. *Social Science Computer Review*, 27 (1), pp. 130-137. <https://doi.org/10.1177/0894439308318213>
- Hobbs, R., & Coiro, J. (2019). Design Features of a Professional Development Program in Digital Literacy. *Journal of Adolescent & Adult Literacy*, 62 (4), 401–409. Excerpt from <http://10.0.3.234/jaal.907>.
- Istenić Starčić, A., & Turk, Ž. (2017). Ubiquitous Learning and Digital Literacy Practices Connecting Teacher and Learner, 823–827. <https://doi.org/10.1145/2872518.2890580>
- Joshi, P. A. (2010). Mapping Internet Information Literacy among Faculty Members: A Case Study of Rajiv Gandhi College of Engineering, Chandrapur. Retrieved from <http://eprints.rclis.org/14375/>
- Khan, S. A. and Wahid, A. (2015). Digital Literacy Practices for Library Users at Government College University Libraries, Lahore. *Pakistan Library & Information Science Journal*, 46 (4), pp. 50-54. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=112259094&site=ehost-live>
- Khatun, M., Virkus, S., and Yakaria Rahman, A. I. M. (2015). Digital information literacy: A case study in Oslo public library. *Communications in Computer and Information Science*, 552(July), 121–131. [https://doi.org/10.1007/978-3-319-28197-1\\_13](https://doi.org/10.1007/978-3-319-28197-1_13)
- Koltay, T. (2011). Information overload, information architecture and digital literacy. *Bulletin of the American Society for Information Science and Technology*, 38 (1), 33–35. <https://doi.org/10.1002/bult.2011.1720380111>
- Lea, M. R., and Jones, Sr. (2011). Digital literacies in higher education: exploring textual and technological practice. *Studies in Higher Education*, 36 (4), 377 to 393. Retrieved from <http://10.0.4.56/03075071003664021>
- Littlejohn, A., Beetham, H., and McGee, L. (2012). Learning at the digital frontier: A review of digital literacies in theory and practice. *Journal of Computer Assisted Learning*, 28 (6), 547–556. <https://doi.org/10.1111/j.1365-2729.2011.00474.x>
- Manžuch, Zinaida and Macevičiūtė, Elena (2020). Getting ready to reduce the digital divide: Scenarios of Lithuanian public libraries. *Journal of the Association for Information Science and Technology*. 71;10,
- McNicol, S. (2016). Responding to Concerns About Online Radicalization in U.K. Schools Through a Radicalization Critical Digital Literacy Approach. *Computers in the Schools*, 33 (4), 227–238. Retrieved from <http://10.0.4.56/07380569.2016.1246883>



- Meyers, E. M., Erickson, I., & Small, R. V. (2013). Digital literacy and informal learning environments: an introduction. *Learning, Media & Technology*, 38 (4), pp. 355-367. Retrieved from <http://10.0.4.56/17439884.2013.783597>
- Nelson, K., Courier, M., and Josef, G. W. (2011). Teaching Tip An Investigation of Digital Literacy Needs of Students. *Journal of Information Systems Education*, 22 (2), 95–109. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=66339172&site=ehost-live>
- Nicholas, D., and William, P. (1998). Review of P. Jester “Digital Literacy”. *Journal of Documentation*, (54 (3)), 360–362.
- Noh, Y. (2017). A study on the effect of digital literacy on information use behavior. *Journal of Librarianship and Information Science*, 49 (1), pp. 26-56. Retrieved from <http://10.0.4.153/0961000615624527>
- Oso Senny Oluwatumbi. (2015). Post Graduate Students’ Digital Literacy: Information Gaps. *International Journal of Case Studies*, 4 (2015–07), 07–13. Retrieved from <http://www.casestudiesjournal.com>
- Parvathamma, N., and Pattar, Dr. (2013). Digital literacy among the student community in management institutes in Davanagere District, Karnataka State, India. *Annals of Library & Information Studies* 60(3), p. 159-166. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=97747008&site=ehost-live>
- Pool, C. R. (1997). A new digital literacy. A conversation with Paul Gilster. *Educational Leadership*, 55(3), 6–11.
- Shariman, T. P. N. T., Razak, N. A., and N.Noor. F. M. (2013). Digital Literacy Competency for Academic Needs: An Analysis of Malaysian Students in Three Universities. *Procedia - Social and Behavioral Sciences*, 69(Iceepsy), 1489–1496. <https://doi.org/10.1016/j.sbspro.2012.12.090>
- Silverblatt, A., Wempen, F., Hobbs, R., Coiro, J., Porat, E., Blau, I., ... Gochyyev, P. (2019). Digital Literacy. *IFLA Journal*, 7 (1), pp. 93-106. <https://doi.org/10.1017/CBO9781107415324.004>
- Soyemi, O., Ojo, A., and Abolarin, Monsieur. (2018). Digital Literacy Skills and MOOC Participation among Lecturers in a Private University in Nigeria. *Library Philosophy and Practice*, p. 2-19. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=133894526&site=ehost-live>