

4th Industrial Revolution: View from the LIS Professionals in Bangladesh

Dr. Md. Nasiruddin¹

Abstract: *The study has aimed to conduct a countrywide library survey for measuring LIS Professionals' knowledge, attitude and practices concerning 4th Industrial Revolution in the current context of Bangladesh. Both desk and field research methods have been applied with a view to explore the perception of the Bangladeshi library professionals about the 4th IR. Library Professionals have been treated as a vital knowledge-force as they are playing a very dynamic role in the universal diffusion and advancement of knowledge and education around the globe for creating knowledge based society. The survey has been designed with a total population of 340 LIS Professionals from 50 libraries belonging to three categories of which 20 are government public libraries, 10 special libraries and 20 academic libraries (especially the Honours College Libraries affiliated under National University of Bangladesh). Data has been collected from the respondents through questionnaire method and have been analyzed using simple SPSS. Findings revealed that the level of knowledge of the LIS Professionals regarding ICT skills associated with 4thIR to some extent is poor. Findings also revealed that their attitude towards embracing the 4thIR to some extent is still negative. LIS professionals whose mindset is to provide traditional library services instead of innovative services are becoming apprehensive to adopt the changing technologies. They do not like to practice innovative library to not intend to learn and handle advanced technologies to face the challenges of the 4th IR. The study has attempted to find out the reasons behind this. It has also suggested 'the things to be done' by the LIS Professionals to cope up with the sophisticated technologies associated with the 4th IR.*

Keywords: KAP Study; 4IR; Library Professionals; 4th Industrial Revolution; Library and Information Science; LIS Profession in Bangladesh

DOI: <https://doi.org/10.3329/nujhsbs.v8i1.68080>

Background

There is no doubt about the fact that development is a product of education and education is a process through which people are formally and informally trained to acquire knowledge and skills. So, the role of libraries and librarians in the context of 4th IR and

¹ Dean, School of Undergraduate Studies & Professor Head, Dept. of Library and Information Science, National University Bangladesh, Email: nasiruddin.mitul@nu.ac.bd

capacity building of the people can never be overemphasized, if it serves in an innovative way by breaking the tradition (Ogunsola, 2011). Basically library is a living apparatus which preserves all the information of the past for the use of the present generation and that creates link between the past and present generation for the utilization of information by the future generations. Collection, organization, dissemination and preservation of the learning materials are the main functions of the libraries. In most cases library-materials are poorly organized and preserved manually. Quick dissemination of information is difficult as the traditional libraries usually are confined within a physical boundary. Getting a piece of information by searching is time consuming as well. But due to the 4th IR, traditional approaches of the library systems are changing rapidly. Access to knowledge in a digital space is increasing day by day (Marwala, 2019).

The 1stIR (invention of Steam Engine), 2ndIR (invention of Electricity), and the 3rdIR (invention of Telecommunications) substituted the human but not their thinking, whereas the 4thIR substitutes human thinking. The World Economic Forum (WEF) observed that, in the future, Artificial Intelligence (AI) would become the ideal personal assistant performing better than humans and be available to all. The 4th Industrial revolution makes lives better, easier and more productive but for some, jobs and livelihoods become collateral damage. The 4th IR is divided into three categories which are physical, digital and biological. Physical includes intelligent robots, autonomous drones, driverless cars, 3D printing, smart sensors etc. Digital includes internet of things, services, data etc. and Biological includes synthetic biology, individual genetic make-up, etc.

The term 4thIR was coined by Klaus Schwab, the founder of the World Economic Forum (WEF) and an academician. In 2016 he defined the 4thIR as a technological revolution that is blurring the lines between the physical, digital, and biological spheres (Schwab, 2016). The integration of the physical world with the computer world is rightly delineated in the example of 'genome sequence'. Now-a-days a genome sequence result can be acquired by using computing power in a few hours at the cost of less than one thousand dollars, while the first human genome project took ten years at a cost of 2.5 billion dollars. Such integration opens a new avenue of knowledge, which was out of the scope of this domain before. This evolution of innovation takes place in the cyber-physical space, which is extensively known as Fourth Industrial Revolution (4thIR) or Industry 4.0. Artificial Intelligence, Robotics, Internet of Things (IoT), Cognitive Computing, Cloud Computing, 5G, Quantum Computing, Precision Agriculture, Smart Farming, Biotechnology and Nanotechnology are at the heart of this 4thIR. Scandinavian countries have prepared

themselves to take advantage of 4IR. They have integrated Artificial Intelligence (AI) and Robotics in their education, starting from primary level to higher education with an objective to prepare the cognitive mind of their human resources to lead the 4thIR (Husain, 2019). The education systems of Bangladesh should be equipped with the core subjects of 4IR. Prior knowledge is important to use the valuable resources properly and awareness promotes the use. For ensuring quality services to the users and patrons, librarians must be conscious about the concept and importance of 4thIR. Knowledge and attitude are the prime factors which are determining the librarians' performance during 4thIR. LIS professionals must provide quality information services as they are the main custodian of information (a commodity which is treated as the main driving force of every economy). They should be aware of the trend of 4thIR and also should have a positive attitude to embrace the requisite ICT skills to face the challenges of the 4th IR. This study therefore seeks to examine LIS Professionals' knowledge, attitude and practices concerning 4thIR in academic libraries of Bangladesh.

LIS Profession in Bangladesh: at a glance

Fifty years have passed since the independence of Bangladesh. The whole country is now celebrating 50 years of Independence and also celebrating the 100th years of birth centenary of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman. In spite of substantial developments in many other fields, development of the LIS (library and information Science) profession has got little attention in Bangladesh. Presently, Bangladesh has 01 National Library, 68 government public libraries, 1,603 non-government public libraries, more than 2,000 special libraries, approximately 20,000 academic libraries (including school, madrasha, college and university) and 3,596 NGO-operated libraries across Bangladesh. In addition, there are ministry libraries, e-centers, i.e. ICT-based public access venues such as cybercafés, telecenters and 4,547 government-installed rural Union Information and Service Centers (UISCs). Overall, 40,000 LIS Professionals have been working throughout the country (British Council Report, 2014).

Not only the wisest among us, even the laymen in the society realize the needs of the services of the Library and Information Science as the demand has been expanding rapidly throughout the country after the declaration of the present Prime Minister that one educational institution must have one library with a professional librarian (Daily Star, 2011). Just after the declaration, the Ministry of Education has circulated a Government order creating 28,500 vacant posts for School, College and Madrasah Libraries

throughout the country fixing some criteria that the candidate must have either Honours/Masters or Post-Graduate Diploma Degree in Library and Information Science from any recognized University or other educational institutions affiliated by the National University. It has brought radical changes in the current job market and the demand of the skill-based discipline has increased tremendously. On the other hand, the scenario of the supply side is deplorable due to not having the programs available in the country. Each year less than 300 graduates pass out with Honours and Masters Degree from only 3 public and 1 private universities namely University of Dhaka, Rajshahi University, Noakhali Science and Technology University, East West University and Lalmatia College out of more than 150 universities in Bangladesh. Near about 3,000 students are passing out from 31 diploma institutions and 8 colleges under the National University. About 16,000 Assistant Librarians are working in MPO registered secondary schools across the country. They run the school library as well as teach various subjects like a general teacher. After a long movement, this government has given them teacher status. It is a revolutionary decision of the government which boosted-up the dignity of the profession substantially.

Statistics reveals that supply side is very poor in number in comparison with declared demand side. No doubt, this discipline is quite different from others. In terms of its service pattern, it is a proven fact that Library and Information Science is a Technical Subject which needs professional knowledge with practical educational institutions that can provide this knowledge and training. It must have particular course curriculum and suitable logistics for providing technical training. Realizing the necessity of production and recruitment of knowledgeable and skilled professionals to keep pace with 4thIR, this is the right time for Bangladesh to expand some quality LIS educational institutions.

Rationale

Oxford University Researchers in 2013 mentioned that out of 700 occupations in the world, the following 30 have maximum chance of getting automated (means losing jobs) in future: Telemarketers; Title examiners; Abstractors and searchers; Sewers, hand; Mathematical Technicians; Insurance Underwriters; Watch repairers; Cargo and foreign agents; Tax preparers; Photographic process workers and processing Machine operators; New accounts clerks; *Library Technicians*; Data Entry Keyers; Timing Device assemblers and adjusters; Insurance claims and policy processing clerks; Brokerage clerks; Order Clerks; Loan officers; Insurance appraisers, auto damage; Umpire referees and other sports officials; Tellers; Etchers and engravers; Packaging and filling machine

operators and tenders; Procurement clerks ; Shipping receiving and traffic clerks; Milling and planning machine setters, operators, and Tenders, Metal and plastic; Credit Analysts; Parts salespersons; Claim adjusters, examiners, and investigators,; Diver, sales workers; Radio workers (Carl & Michael, 2015). From these 30 occupations, number 11 namely 'Library Technicians' is this study concern. Naturally, a question may arise in mind 'How library technicians may lose their job?' The case study reveals an example. LIS professionals whose prime responsibility is to collect, organize, disseminate and preserve information have a 99% probability of automation. In the last couple of years, 'Amazon' has created an example assigning robots. These are now responsible for sorting books, rearranging shelves and bring products to the workers. Thus it saves a lot of manpower and provides additional efficiencies (Fati & Adetimirin 2017). So what will happen in future? Does the 4th IR pose an existential threat to LIS professionals? In this study, the answer is simply 'no'. It does not. Not any more than any other technological innovation (information systems, computers, internet, e-readers, Google, Google scholar) did. However what is very likely is that the technologies that emerge from the era will slowly (but surely) lead to profound changes in how libraries operate. Those libraries that fail to understand or embarrass these technologies may, in fact, be left behind. So LIS Professionals must as always, stay abreast of trends in emerging technologies for adapting with the 4thIR.

Bangladesh has done all it needs to prepare for digital integration during and after the 4thIR. Many developed countries of the world did not even think about launching 5G but Bangladesh has done it. The third submarine cable is coming in 2023. Skilled manpower is essential for the 4thIR. To this purpose 39 high-tech parks have been established as well as various ground-breaking programs are being taken and implemented. Bangladesh has already gained the reputation of Asian Tiger under the visionary leadership of Prime Minister Sheikh Hasina. The next high-tech park in Bangladesh will be Silicon Valley. All 4,501 union parishads (the lowest level of local government) in the country's 64 districts have already been included in the digital network. The main services of the government especially land registration, birth registration, university admission or job application etc. are being delivered digitally to the doorsteps of the citizens. Apart from formal and informal education, e-governance, Service Delivery, Public Policy and implementation, Information Technology, Decentralization, Urban Development and Planning, and Challenges to SDG implementation and administrative Policy Strategies have already been introduced with public servants. Training on cloud server, Internet of

things and on artificial intelligence have launched in some educational and training institutes (Lom& Svitek, 2016).

Objectives

The main objective of this study is to examine the LIS Professionals' knowledge, attitude and practices concerning 4th IR in the current context of Bangladesh. The specific objectives are to:

- ✓ Find out why LIS professionals, to some extent, are apprehensive about embracing the challenges of the 4th IR
- ✓ Determine the knowledge and attitude of the LIS professionals about 4th IR in Bangladesh
- ✓ Ascertain their knowledge about ICT skills.
- ✓ Find out the best combination of ICT skills which will help LIS professionals to survive even in the disruptive situation.

Research Questions

The following questions have been raised to guide the study:

- What are the levels of knowledge of the LIS Professionals about 4th IR?
- Do they have any positive attitude to embrace the latest technologies associated with 4thIR?
- What kinds of soft skills do they require to face the challenges of the 4thIR?
- What kinds of supports/training they require to survive in the 4thIR era?
- What is the extent of librarians' awareness of the existence of the technological innovations associated with the 4th IR era?

Review of the Literature

In 2018, Xing et. al. said that not all but only the low-skilled workers will be replaced by machine. But if they prepare themselves with training and education to cope with the changes, machine cannot replace them. Human and machine should work simultaneously with a view to achieve the maximum benefit (Cronje, 2018). Humans are indispensable even a full-fledged automated organization. Humans have the capacity to upgrade their skills by taking over the jobs when automation fails. According to Bernard, (2017), robots could take over jobs of 800 million people by 2030, however, the World Economic Forum (WEF, 2018) asserted that skill revolution could open ways for new opportunities, also more employees need skilling and re-skilling in order to fit in the 4thIR (Jabur, 2019).

Transformation from manual to automation has been increasing unemployment problems in many organizations. Meanwhile robots and AI occupies a good position in the reputed multinational companies. People need hi-tech skills to deal with these. Some people are losing their jobs due to absent of the new skills (Gekara and Snell, 2020; Howard, 2019; Webster and Ivanov, 2020). Computers have already replaced data processing and dissemination systems and make the decision making tasks easier. As a result, human capacity to perform multiple functions has increased. They can do SWOT analysis of the opponent's business and make strategic decision quickly. In the era of 4thIR, the world needs technical hands with soft skills. LIS professionals have the soft skills as they have to deal with data and information. They are responsible for creating, collecting, processing, disseminating, preserving, maintaining, evaluating and retrieving data or information in an organization with a view to achieve the organizational goals. Engerer and Sabir 2020) explored both operational and managerial roles of the LIS Professionals in their research. They explained that a research librarian helps individual researchers, an information specialist delivers the desired tools for networking and resource sharing in research and; an information manager develops information infrastructure in identifying the research areas. The disruptive changes of the technology may paralyze multinational company's business market via replacements of high innovations, value of products, hi-tech services. In spite of the use of AI in the largest organizations, LIS professionals are not yet in danger for losing jobs. Research at University of Oxford in 2013 showed that 47% of jobs in the US could potentially be done solely by machines within 10–20 years (Frey and Osborne, 2017). The research offers hope that new sectors will open more jobs in IT and software development. Academicians and organizational leaders have given opinion that changing role of the job market is a continuous process as technology is changing rapidly. The society should adapt with such changes. The employees need to move to new sectors with a view to survive in this 4IR. ICT has a massive impact on LIS profession, no doubt. It affects how we do things, not why we do the tasks (Christensen & Overdorf, 2014). LIS professionals are worried because they think that AI, Machine language, robotics, IoT and other smart technology may replace the job of those professionals who are less capable of handling these technologies. LIS Professionals require developing new service models to satisfy the users. A research article written by Dennis H. Ocholla et al. in 2016 entitled 'Readiness of academic libraries in South Africa to research, teaching and learning support in the Fourth Industrial Revolution' clearly mentioned that more than 23 services are identified in the libraries and information centres where full machine supports are needed. These include free Wi-Fi in the libraries;

24/7 study areas and access to library resources on and off campus; research commons; maker space; borrowing ICTs (e.g. laptops); e-resources; e-catalogues; research data services; open scholarship; resource sharing and networking, inter-library loan services, information literacy and reference/bibliographic tools, indexing and abstracting services, e-book delivery, library as a publisher, etc. With the above discussion as a backdrop, it becomes a fact that organizations need to invest in humans.

Methodology

Structured Questionnaire for Librarians

The survey has been designed with a total population of 340 LIS professionals from 50 academic institutions of which 20 are Public universities, 10 Private universities and 20 Honours Colleges affiliated under National University Bangladesh. Fraction of the sample size from different academic institutions is mentioned below:

Public Universities	20 university (10 from each univ); so 20X10=	200
Private Universities	10 University (10 from each univ); so 10X10=	100
Academic libraries specially Honours College libraries	20 Colleges (2 from each clgs); so 20X2=	40
	Total	340

The author prepared a set of structured questionnaire and sent it to the librarians of the sample libraries for pre-testing their opinion. Pre-test was done successfully. Based on the pre-test, a few moderations were made on the questionnaires. The author subsequently made the questionnaire exclusively self-explained for acquiring information relating to 4thIR and librarians knowledge, attitude and practices in the context of Bangladesh. Then the questionnaires were sent to 500 librarians working at the representative sample libraries for collecting data and information, of which 340 were duly completed and found useable which were analyzed for the purpose of the study. Therefore the response rate was 68%. The data collected for this study was analyzed using simple percentage/frequency count sand weighed mean. Provision was made in the questionnaire to gather information on various variables like general information of the libraries, automation facilities, automation services, internet facilities, manpower, library collections, activities performed, knowledge about 4th IR, probable challenges, attitude to

face the challenges, areas of training, existing practice to handle new technologies and the ICT service offered. Attempts were made to know the LIS professionals' knowledge, attitude and practices concerning 4thIR in Bangladesh. These have also been considered as variables of the study. The data collected for this study was analyzed using simple percentage/frequency count and weighed mean.

Findings of the Survey

Table-1: Percentage distribution of the LIS Professionals by gender

Gender	Frequency	Percentage (%)
Male	157	43.6
Female	183	53.8
Total	340	100.0

The frequency distribution of LIS professionals, according to their gender in Table 1 reflects that number of female is higher than the male.

Table 2: Percentage distribution of the LIS Professionals by age

Age Range	Frequency	Percentage(%)
18-30	34	9.8
31-50	256	75.3
51-65	50	14.9
Total	340	100.0

Table 2 shows the frequency distribution of the LIS Professionals by their age. Librarians of the middle ages which ranges from 31-50 years age is found the highest frequency of 256 (75.3%). Librarians age ranging from 51-65 years is found 50 (14.9%) whereas the young LIS professionals who are below 30 years is 34 (9.8%) respectively. This reflects that large numbers of LIS Professionals in Bangladesh are in the middle age (31-50years).

Table-3: Experience of the LIS Professionals

Work Experience	Frequency	Percentage(%)
0-5 years (less experienced)	72	21.2

Above 5 years(more experienced)	268	78.8
Total	340	100.0

Table 3 reveals that the highest number of LIS Professionals (78.8%) has been working for more than 5 years followed by 72 (21.2%) professionals, working for 0-5 years (less experienced). Therefore, it can be surmised that large number of LIS professionals in the academic libraries of Bangladesh are experienced. It also indicates that they are capable of adopting technological changes as they are in their job for a long time.

Research Question 1: What are the levels of knowledge of the LIS Professionals about 4thIR?

Table 4: Level of knowledge about the 4thIR

S.N.	Knowledge about the 4 th IR technological terminologies	Excellent Very High Extent	Good High Extent	Medium Low Extent	Low Extent	Weighted Mean
1	Awareness of the existence of digitization technology	125	197	14	4	1.72
2	Awareness of the existence of Artificial Intelligence (AI)	6	11	161	162	0.80
3	Awareness of the existence of robotic technology	28	154	94	64	1.20
4	Awareness of the existence of block chain technology	9	21	187	123	1.70
5	Awareness of the existence of 3D printing technology	49	64	164	63	2.07
6	Awareness of the existence of cloud computing technology	32	61	184	63	1.9
7	Awareness of the existence of Network security technology	44	51	180	65	1.88
8	Awareness of the existence of space technology	16	34	187	103	1.9
9	Awareness of the existence of Internet of things	35	55	194	56	1.75
10	Awareness of the existence of Library automation and OPAC technology	245	70	23	2	1.38

S.N.	Knowledge about the 4 th IR technological terminologies	Excellent Very High Extent	Good High Extent	Medium Low Extent	Low Extent	Weighted Mean
11	Awareness of the existence of Institutional Repository technology	96	144	92	18	2.42
12	Awareness of the existence of RFID technology	23	84	164	69	2.20
13	Awareness of the existence of mobile computing technology	95	160	72	13	2.12
	Weighted Mean					1.20
	Criterion Mean					1.25

Table 4 demonstrates that a weighted mean of 1.20 is less than the standard mean of 1.25 which reveals that the level of knowledge of the LIS Professionals regarding 4th IR is low to some extent.

Research Question 2: Do the LIS professionals have any positive attitude to embrace the latest technology associated with 4th IR?

Table 5: LIS professionals attitude for embracing the latest technologies related with 4thIR for providing effective information services

S.N.	LIS Professionals attitude towards:	Highly Positive	%	Positive	%	Highly Negative	%	Negative	%
1	Cope-up with the changing technologies	218	64.1	122	35.9	00	00	00	00
2	Keep pace with the transformation from traditional to innovative library services	276	80	64	20	00	00	00	00
3	To be proactive of users technological supports	220	65	120	35	00	00	00	00
4	Capable to provide hi-tech library and information	300	90	40	10	00	00	00	00
5	Capable to handle digital	232	68	108	32	00	00	00	00

S.N.	LIS Professionals attitude towards:	Highly Positive	%	Positive	%	Highly Negative	%	Negative	%
6	Capable to provide resource-sharing and networking nationally and internationally	210	62	130	38	00	00	00	00

Table 5 reflects that none of the respondents shows highly negative and negative attitude to cope up with the changing technologies related with 4thIR. Whereas, the majority (64.1%) of the respondents shows highly positive attitude and 35.9% shows positive mentality to cope-up with the changing technologies to face the challenges of the 4thIR. Also, 80% of the respondents agreed to keep pace with the transformation from traditional services to innovative library services while 20% of the LIS professionals show positive attitude and none found to have negative attitude on that point. 220 respondents out of 340 are highly positive to be proactive in providing technological supports to the users, while 35% of the respondents show positive attitude. It needs to be mentioned that none of the respondents found negative on this point.

90% of the respondents are highly positive about the fact that they are capable of providing hi-tech library and information services based on the demand of the users while only 10% of them have shown positive attitude and none of the respondents were found negative on that issue. 68% of the respondents are highly positive to handle digital library while 32% LIS professionals expressed simple positive attitude on it and this just heartening that none were found negative on this point. 62% of the respondents expressed highly positive attitude towards providing resource-sharing and networking at national and international levels using technology. While 38% of them showed simple positive attitude to collaborate with the libraries and none of the respondents have shown negative attitude regarding this issue.

Research Question 3: What kinds of soft-skills they prefer to face the challenges of the 4th IR?

Table 6: Soft Skills which are preferred by the LIS professionals in Bangladesh

S.N.	Soft Skills for LIS professional:	Highly needed	%	Needed	%	No Need	%	No need at all	%
1	Computer literacy skills	135	40	105	31	100	29	00	00
2	Library Software handling/searching skill	53	16	40	10	155	47	92	27

S.N.	Soft Skills for LIS professional:	Highly needed	%	Needed	%	No Need	%	No need at all	%
3	New service innovation	242	71	98	29	00	00	00	00
4	Automation skill	89	26	60	18	146	43	45	13
5	Management skill	10	3	64	19	214	63	52	15
6	E-library services	178	52	162	48	00	00	00	00
7	Digital Library Services	162	71	98	29	00	00	00	00
8	Own service delivery skill through ICT	262	77	78	23	00	00	00	00
9	Skill about PPT and on-line services	223	66	117	34	00	00	00	00
10	Information literacy skill	248	73	92	27	00	00	00	00
11	Ability to operate scanner, digital equipment etc.	206	61	134	39	00	00	00	00

In Table 6, most of the soft skills being mentioned are very common for LIS professionals. While the study intended to know about the Computer literacy skills, 135 (40%) of the librarians replied 'it is highly needed'. 211 (31%) of the respondents felt its necessity while 198 (29%) of them mentioned 'no need' and none found to have disagreed on the point. Few professionals (16%) expressed the importance of Library Software handling/searching skill strongly. 10% of the respondents 'agreed' while majority (47%) of the LIS professionals expressed 'negative' and 27% mentioned 'strictly negative' on this issue. Regarding 'new service innovation skills' in the library, 242 of the respondents have expressed their positive feedback which is majority in number. 29% respondents generally agreed while none of the respondents found to have disagreed and strongly disagreed respectively on this point. Only a few, 3% and 19% of the respondents were found to be confidently positive and mildly positive respectively about Automation skills issue while most of the respondents (63%) and 15% of the respondents disagreed and strongly disagreed respectively on that point. 52% and 48% of the respondents strongly agreed and agreed respectively on E-library services issue which is the highest in number, while none found to have disagreed or strongly disagreed with it. Table 6 also shows that majority of the respondents which are 162 (71%) and 98 (29%) expressed the need for Digital Library Services, where none found to have disagreed to that. 77% and 23% of the LIS professionals thought that they should deliver their own services through ICT. There is none who disagreed with it. 223 (66%) and 117 (34%) of the respondents strongly agreed to have skills about PPT and on-line services. Regarding Information literacy skills, 73% and 27% of the LIS professionals expressed common consent which revealed their positive attitude respectively and none of the respondents were found to have difference of opinion

on that issue. Table 6 also reveals that 61% and 39% of the LIS professionals strongly agreed to have the ability to operate scanner, digital equipment etc in the library. None have differed on the point.

Finally, Table 6 reflects that the soft skills which are attractive to the majority of the LIS professionals in the current context of Bangladesh are computer literacy skills, library software handling/searching skill, new service innovation skill, automation skill, management skill, e-library services, digital library services, own service delivery skill through ICT, skill about PPT and on-line services, information literacy skill, ability to operate scanner and digital equipment etc.

Research Question 4: What kinds of supports/training they require to survive in the 4thIR era?

Table 7: Supports/Training required by LIS Professional to face the challenges of the 4thIR in Bangladesh

S.N.	Supports/Training required by LIS Professional to face the challenges of the 4thIR in Bangladesh are:	Very High Extent	High Extent	Low Extent	Very Low Extent	Weighed Mean
1	Adaptability	211	37	79	13	1.61
2	Tech Savviness	291	31	16	2	1.16
3	Creativity:	242	30	48	20	1.40
4	Data Literacy	260	20	50	10	1.30
5	Digital Skills	205	30	84	21	1.65
6	Leadership	278	26	12	24	1.21
7	Emotional Intelligent (EQ).	292	36	08	4	1.16
8	Commit to a life-long learning	211	38	77	14	1.61
	combined Mean					1.75
	standard Mean					1.25

Table 8 demonstrates that $1.75 > 1.25$. It means combined mean is greater than standard mean which reflects that the above-mentioned training/support will help the LIS professionals a lot to keep pace with the rapidly changing technologies and with the

rapidly changing context as well. Thus they will be resilient to face the challenges of the 4thIR.

Analysis

It is an interesting finding that LIS profession in Bangladesh attracts more female members than male. Due to the nature of the job and the context of the country's culture, females are feeling comfortable where they can contribute a lot. They find library or knowledge centre a good place to work in. The middle aged people ranging from 31-50 are higher in number who is working in the libraries of Bangladesh. They are experienced enough as Table-3 shows that 78 (8%) of them are working in the libraries for more than 5 years. The level of librarians' knowledge regarding 4th IR is low as in weighed mean is less than standard mean. Table 4 reflected it clearly while the study has asked to the respondents about the knowledge of the 13 indicators which are co-related with the 4th IR. This finding complies with the services of the academic librarians (especially the Honours college libraries) who are not yet been capable to handle any library software, MSWord, MS Excel, database management software etc. This is the result of the poor knowledge and awareness about technologies. Most of the LIS professionals have shown positive attitude to cope with the changing technologies to face the challenges of the 4thIR. Maximum number of respondents agreed to deliver innovative services instead of traditional ones. They are committed to provide proactive technological services for their users. Regarding soft skills which are attractive to the LIS professionals of Bangladesh, most of them agree that they need training on Computer literacy skills, Library Software handling/searching skill, New service innovation skill, Automation skill, Management skill, E-library services, Digital Library Services, Own service delivery skill through ICT, Skill about PPT and on-line services, Information literacy skill, Ability to operate scanner and digital equipment etc. The findings of the Table 7 demonstrates that most of the LIS professionals in Bangladesh require training on Adaptability, Tech-Savviness, Creativity, Data Literacy, Digital Skills, Leadership, Life-long Learning and Emotional Intelligent (EQ) for surviving in the 4thIR. The aforesaid training will build their confidence and accordingly they will be resilient to face the upcoming challenges of the 4th IR.

Concluding Remarks

In 2018, Honourable Prime Minister of the People's Republic of Bangladesh, Sheikh Hasina announced that each year 5 February will be celebrated as 'The National Library

Day of Bangladesh'. Through this, she has given dignity to the LIS professionals who think themselves as a much marginalized profession due to many reasons such as their salary, grade and social status. Another milestone is that around sixteen thousand assistant librarians who are working in the MPO (Monthly Pay Order) registered secondary schools across the country got "Teacher" status in 2021. It is undoubtedly a revolutionary decision of the government which enhances the value and dignity of the school librarians in the society. Still some problems are sure to crop up regarding technologies during the 4thIR. The study offers some suggestions to resolve these problems: (a). there should be exclusive budgetary provision for training the LIS professionals; (b). status of the LIS professionals must be upgraded; (c) the library authority should adopt new technologies in the libraries so that their staffs can be familiar with the new technologies to face the challenges of the 4thIR; (d). all libraries including but not limited to school, college, madrasa, university, NGOs, public, non-public, special etc. should be automated; (e). an integrated network of the LIS professionals should be formed forthwith; (f). orientation of new users should be made a regular exercise so that they can be acquainted with the use of different e-resources within local and other networks; (g) countrywide library education must be launched which will be started from the secondary school level; (h). all academic institutions should have a library with a professional librarian complying with the declarations of the present Prime Minister; (i). their grade, rank and level should be fixed-up for reducing discrimination; (j). recruiting LIS professionals at all the vacant posts.

Overall, the present scenario of the LIS professionals in Bangladesh is not encouraging. The weaknesses inherent to the current system should be identified and prompt action must be taken to solve the problems. In the 4thIR, people will rapidly produce more result with the help of a machine. Many people in the library field argue that the industrial revolution will create unemployment in librarianship. But, by equipping librarians and information professionals with latest technology and artificial intelligence, their jobs can be done more easily. The librarians can reshape their job by trying to achieve more skills. LIS Professional Organizations in Bangladesh should convince administrators at the higher level about the importance of the librarians to face the challenges of the 4thIR. This includes education, motivation, awareness raising, perception changing of the community people about the status of the librarian, etc. However, if the library professionals themselves are not fully proficient in the new techniques and technologies, they will never be able to convince the policy makers. Therefore, their own level of skill and education should be continuously upgraded to keep pace with the latest

developments in library and information science. Under this learning process, library professionals will be able to enhance their career prospects by upgrading their skills continuously. Libraries and Librarians should also keep themselves abreast of the latest technologies to provide optimal services in minimum time.

We have just crossed second decade of the 21st century facing the corona virus pandemic as well as many severe problems. The third wave of corona pandemic (omicron) has hit Bangladesh seriously. Ensuring timely information services for this huge portion of the humanity need to be put in place (Mutula and Majinge, 2016). How this will be planned and implemented is a matter of great importance and it is safe to presume that, this matter will continue to draw the attention of information and development enthusiasts all over the world in the coming days as well. Through this survey, an attempt has been made to draw a realistic picture. The study has taken an attempt to explore the knowledge, attitude and practices of the LIS professionals in Bangladesh concerning 4thIR. The outputs of the study would be a milestone for creating a knowledge based-society even in the era of 4thIR if government and other policy makers of Bangladesh follow this idea for ensuring the sustainable development of the LIS professionals and the information infrastructure in Bangladesh as well.

References

- Bernard M., 2017. '5 Simple tips to help you survive in the 4thIR'. Retrieved from the site www.forbes.com dated 20/01/2022.
- British Council Survey Report, 2015. *A Library Landscape Assessment of Bangladesh*. The study was commissioned by the British Council, in collaboration with the Government of Bangladesh, BRAC and the Bengal Foundation. Report Published in 2015, British Council, Dhaka, Bangladesh.
- Carl F. & Michael O., 2015. 'Technology at Work-The Future of Innovation and Employment', Oxford Martin School and Citi, February 2015. <http://www.oxfordmartin.ox.ac.uk/downloads/reports>.
- Christensen, C. M., & Overdorf, M., 2000. *Meeting the challenge of disruptive change*. *Harvard business review*, 78(2), 66-77.
- Cronje J. 2018. *The 4th Industrial Revolution and Library Practices in South Asia*. Available at: www.uj.ac.za/newandevnet/pages
- Engerer and Sabir 2020. *A Research Paper on Information Professionals Going Beyond the Needful User in Digital Humanities Project Collaboration*. Published in the Journal of Information Science Theory and Practice, Vol. 8 No. (1). January, 2020. Retrieved from the site <https://www.researchgate.net/publication/338449346>
Dated 22/01/2022.

- Fati, O.I., & Adetimirin, A., 2017. *Influence of computer literacy skills on OPAC use by undergraduates in two universities in Nigeria*. *International Journal of Academic Library and Information Science*. 5(1), 27-37, DOI:10.14662/IJALIS2017.002.
- Gekara and Snell, 2020; Howard, 2019; Webster and Ivanov, 2020). *An article on 'Artificial intelligence: Implications for the future of work; published in the American Journal of Industrial Medicine*. Vol. 62, No.4. August, 2019.
- Hussain, A. 2019. *Industrial evolution 4.0: Implication to libraries and librarians*. *Library Hi-Tech News*. Delhi, India.
- Jabur, N., 2019. 'What role might libraries play in the fourth industrial revolution?' *Journal of Information Studies and Technology*, 2(6). Toronto, Canada.
- Schwab, K., 2016. *The Fourth Industrial Revolution*. A text book Published by the World Economic Forum (WEF). Geneva Switzerland.
- Lom, M., Pribyl, O. and Svitek, M., 2016. *Industry 4.0 as a part of smart cities*. 2016 Smart Cities Symposium Prague (SCSP). IEEE. Doi:10.1109/SCSP.2016.7501015
- Marwala, T., 2019. *Build libraries for the fourth industrial revolution*. Retrieved from [file:///E:/4th%20Industrial%20Revo/Build%20libraries%20for%20the%20fourth%](file:///E:/4th%20Industrial%20Revo/Build%20libraries%20for%20the%20fourth%20).
- Mutula, S. and Majinge, R.M., 2016, "Information behavior of students living with visual impairments in university libraries: a review of related literature", *The Journal of Academic Librarianship*, Vol. 42 No. 5, pp. 522-528.
- Ogunsola, L. A., 2011. 'Libraries as tools for capacity building in developing countries'. *The Journal of Library Philosophy and Practice*. Retrieved April, 2012, from <http://unllib.unl.edu/LPP/>
- Ocholla, L., Mutsvunguma, G. and Hadebe, Z., 2016, "Readiness of academic libraries in South Africa to research, teaching and learning support in the Fourth Industrial Revolution", *Asian Journal of Libraries and Information Science*, Vol. 82 No. 2, pp. 11-19.
- The Daily Star, 2011. Citation has been quoted in the daily star from the speech of the then honourable prime minister in the International Conference, Organized by Library Association of Bangladesh (LAB), September, 2011. Dhaka, Bangladesh.
- World Economic Forum, 2016. *The future of jobs: Employment, skills and work force strategy for the fourth industrial revolution*. World Economic Forum, Geneva, Switzerland. Retrieved from http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf.