# ARPIT Online Course on Emerging Trends & Technologies in Library & Information Services (ETTLIS): A Case Study

Nabi Hasan* and Debashis Naskar

*Indian Institute of Technology, Delhi – 110 016, India*
*E-mail: hasan@library.iitd.ac.in

**ABSTRACT**

Annual Refresher Programme In Teaching (ARPIT) is a major and unique initiative for professional development in Library and Information Science (LIS), using Massive Open Online Courses (MOOCs) platform called SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) of Government of India. Learners who find it difficult to spare time for regular physical learning may use this platform for professional development and career progression. With the advantage of this platform, a new course, i.e., Emerging Trends & Technologies in Library & Information Services (ETTLIS), has been launched with National Resource Centre in Library and Information Science (NRC) at Central Library, IIT Delhi. People might be thinking that the role and prospects of library professionals are diminishing. However, we can say that they are becoming more important provided they are keeping pace with emerging trends & technologies in LIS and willing to go out of the box. ETTLIS course has been designed to make learners aware of new trends, technologies, and developments in the field of library systems and services. The paper is aimed to highlight this course and its useful contents to every library professional through SWAYAM and its YouTube Channel to help in professional development and career progression.

**Keywords:** SWAYAM; ARPIT; MOOCs; ETTLIS; E-Learning; Online education; IIT Delhi.

## 1. INTRODUCTION

With the advent of the internet and information and communication technologies (ICTs), the online courses have brought a remarkable transformation in higher education. In this new era, the web-based MOOCs platform, such as SWAYAM, plays an important role by providing access to an unlimited number of learners with a chance of online education. This platform has collaborated with highly reputed bodies, namely, IITs, IIITs, IIMs, IISc, IUCAA, NITs, NITTTRs, Central Universities, etc. by covering a diverse field of subjects from several disciplines. Currently, SWAYAM offers several courses for the certificate, diploma, undergraduate, and postgraduate learners as well as refresher programmes/faculty development programmes for teaching, equivalent and other self-paced learners. This platform provides an opportunity to learn something new with its freely accessible material, video tutorials and to update professional knowledge.

The Ministry of Human Resource Development, Govt. of India under its ARPIT Programme has declared Central Library, IIT Delhi as National Resource Centre (NRC) in Library and Information Science. The course has been designed and developed at IIT Delhi and has been named as Emerging Trends & Technologies in Library & Information Services (ETTLIS) and is being offered through the SWAYAM platform as shown in Fig. 1. ARPIT 2019 was officially launched by the Minister of Human Resource Development, Govt. of India on

16 September 2019. Currently, the ARPIT Program has about 1,42,718 enrolments in 48 courses running through National Resource Centres (NRCs), identified with a focus on the latest developments in the various disciplines, new & emerging trends, pedagogical improvements, etc., as shown in Table 2. IITs have been given many ARPIT courses, and the number of enrollments done by different learners throughout the world is shown in Table 1 and Table 2. As per the current dataset, a total of 2980 learners were enrolled in ETTLIS and out of this, 1784 learners have completed their assessments. More specifically, out of 16 assessments, 993 learners completed >= 10 assessments, 243 learners completed >= 5 assessments and 548 learners completed at least >= 1 assessment, and the rest of the learners didn't attend the assessments. The ETTLIS ARPIT portal is still receiving the enrolments due to COVID-19 lockdown, but that is for accessing the contents for professional development only and such enrolments will not be considered for evaluation, etc. ARPIT has been planned to be an ongoing exercise so that every year, NRCs can continuously develop new refresher modules in their earmarked disciplines, and the training materials can be made available through the SWAYAM platform. The ARPIT courses are open to the global community with the contents available through Videos, PPTs, Text, and Assignments through different week-wise modules. Weightage has been given for both continuous assessments and term-end examinations conducted through National Testing Agency through online test centres throughout India. One needs to score atleast 50 per cent overall to obtain the certificate. However, there is flexibility for learners to join the
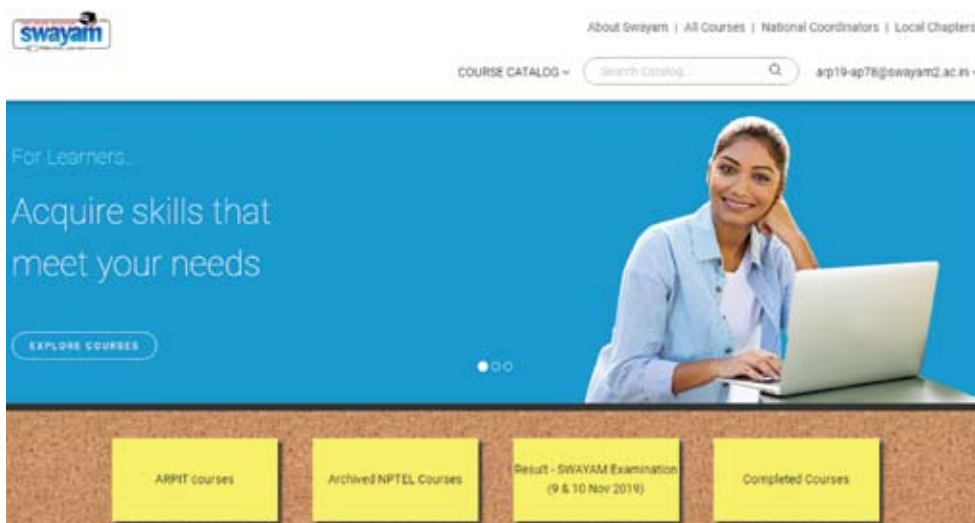
**Figure 1. SWAYAM platform with ARPIT courses.**

**Table 1. List of ARPIT courses 2019 (IITs)[1]**

| IIT | Course | No. of Learners |
|---|---|---|
| IIT Delhi | Emerging Trends & Technologies in Library & Information Services (ETTLIS) | 2980 |
| | Textile Engineering | 338 |
| | Mass Transfer I | 566 |
| IIT Bombay | A Practical Refresher in Computer Engineering | 7291 |
| | A Practical Refresher in Computer Science | 6028 |
| | Convective Heat Transfer: Fundamentals and Applications | 1038 |
| | Fourier Analysis and its Applications | 1243 |
| | Fundamental Concepts of Electricity | 2524 |
| | Introduction to Quantum Physics and its Applications | 2593 |
| | Numerical Methods in Civil Engineering | 1437 |
| IIT Kharagpur | Advances in Agricultural Engineering | 1813 |
| IIT Patna | Components and Applications of Internet of Things | 9993 |

libraries as well. Every educational institution is now trying to compete in the national and international rankings and with the changing roles and services, the libraries and librarians are also playing a key role in an institutional building.

The purpose of this paper is to highlight the importance of ARPIT Online MOOCs platform with special reference to ETTLIS to share its useful contents to help LIS professionals to upgrade their skills and help in career progression. The aim of this course is not restricted to the traditional library science curriculum but also to cover how different technologies can be applied to this domain to provide better resources, services and products. This ARPIT further aims to impart knowledge regarding emerging trends and technologies in library and information services like library automation, digitalisation, RFID implementation, open access, open science, virtual/digital reference services, ask the librarian, mobile-based library services, expert systems and robotics, internet of things, augmented reality tools and virtual reality tools, semantics, artificial intelligence, machine learning, etc. To fulfill this purpose, the ETTLIS coordinated with relevant resource persons from industry, academia and LIS profession and developed the Video and Text contents.

The course may help to improve the managerial, communication, presentation, customer services, commitment, evaluation, assessment and soft skills of the professionals. Therefore, the target audience primarily is faculty, researchers, and professionals who wish to understand and make use of the emerging trends and technologies in library and information services and need career progression[2].

course for the purpose of professional upgradation only without appearing for the evaluation[1].

## 2. NEED

Libraries are universally recognised as an important social institution, and no community is considered complete without a library system. People might be thinking that the roles and prospects of library professionals are diminishing; rather, we can say that they are becoming more important, provided they are keeping pace with the emerging trends & technologies in LIS. However, libraries are facing change due to the impact of ICT, changing patron needs, changing information environment, or Web/Google that is trying to replace Reference Librarians. The use of disruptive technologies is resulting in a transition from Print to Digital, changes are taking place from Forms to Formats, delivery systems, and it is inevitable. There is a transformation in need of library users, and due to ICT, there is a change in the resources, services, and products of the

## 3. LITERATURE REVIEW

There are numerous studies conducted by various authors on MOOCs related online courses. Similarly, many studies also focus on the library and information sciences. In this digital era, MOOCs are still growing exponentially and changing towards recent trends and technologies. By following the same direction, open distance learning is also changing worldwide using MOOCs platform. A study conducted by Nisha and Senthi[3], explains technological changes towards distance learning over the years, including its relevancy and shows various MOOCs courses available in India. The study highlights that due to technological developments, many professionals from

**Table 2. List of ARPIT courses 2019 (Others than IITs)[1]**

| Institute/University | Course | No. of Learners |
|---|---|---|
| University of Kerala | Financial Markets and Emerging Business Models | 4341 |
| Shri Ram College of Commerce (DU) | Commerce | 6593 |
| | Economics | 5106 |
| Gujarat University | English Language Teaching | 8852 |
| NITTTR Bhopal | Assessment of Practical and Social Skills in Higher Education | 2367 |
| NITTTR Chandigarh | Big Data Analytics for Smart Grid | 8233 |
| NITTTR Chennai | Sustainable Construction Materials and Techniques | 4193 |
| IISER Pune | Climate Change: A Guide for Teachers of All Disciplines | 4277 |
| Central University of Kerala | Curriculum, Pedagogy, and Evaluation for Higher Education | 2763 |
| University of Hyderabad | Data Analysis for Social Science Teachers | 5848 |
| School of Planning and Architecture | Emerging Areas in Hospital Planning, Design, Construction and Facilities Management | 1767 |
| Jamia Millia Islamia | Gender/Women Studies | 3456 |
| | History of Indian Science and Technology | 867 |
| | History | 1201 |
| Jawaharlal Nehru University | Arts (Literature & Culture) | 933 |
| | Political Science | 1352 |
| Saurashtra University | The Trends of Modern Gujarati Literature | 232 |
| | Tribal Studies | 1041 |
| Aligarh Muslim University | Urdu | 593 |
| Savitribai Phule Pune University | Leadership and Governance in Higher Education. Level 2 | 2665 |
| Sri Guru Teg Bahadur Khalsa College (DU) | Chemistry for Higher Education | 5653 |
| NALSAR University of Law | Law | 2199 |
| Banasthali Vidyapith | Management | 5744 |
| BHU | Pharmacy for Higher Education | 2435 |
| Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha | Sanskrit Pedagogy | 607 |
| Central University of South Bihar | Education (Concerns in Educational Research and Assessment) | 3169 |
| Guru Jambeshwar University of Science & Technology Hisar | Pedagogical Innovations and Research Methodology (Interdisciplinary) | 4042 |
| Pt. Ravishankar Shukla University | Psychology | 2981 |
| University of Jammu | Home Science, Professional Development of Home Science Faculty | 416 |
| Savitribai Phule Pune University | Teacher and Teaching in Higher Education | 6075 |
| Mahatma Gandhi Antrarashtriya Hindi Vishwavidyalaya | Ritikalain Hindi Sahitya | 744 |
| Sant Gadge Baba Amravati University | Skills for New Educational Architecture | 1950 |
| Saurashtra University, Gujarat | The Trends of Modern Gujarati Literature | 235 |
| Inter-University Centre for Astronomy and Astrophysics | Stars and Stellar Systems | 2241 |
| IISc | X-Ray Crystallography | 1143 |

rural places are finding it difficult in comparison to urban side professionals to compete in this domain. Therefore, knowledge and technical skills are not developing in a proper way in these areas. Based on this issue, another study by Pathak and Das[4], has highlighted some loopholes in the LIS profession with special to North-East part of India. By following the LIS

**Table 3. List of ETTLIS topics[2]**

| Topic | Topic |
|---|---|
| Library and Information Science Profession: Trends & Issues | Social Network Analysis and Big Scholarly Data |
| Transformation of Library and Information Science: Resources, Services and Products | Knowledge Management and its Application in Libraries |
| Library and Information Science Profession: Opportunities and Challenges | Development of a Digital Library Using DSpace on Windows |
| Preparing for Transformed Libraries in the 21st Century: Changing Landscape, Challenges and Opportunities (Part-1) | Open Educational Resources: Issues and Contexts |
| Preparing for Transformed Libraries in the 21st Century: New Roles, Skills and Strategies (Part-2) | Open Access to Scholarly Communications & Open Licensing |
| E-Resources and Consortia Management | Enhancing Quality of Higher Education: Role of INFLIBNET Centre |
| E-Resource Management & Licensing Issues | Artificial Intelligence: Representation of Knowledge & Beyond (Part-1) |
| E-Resource Management (ERM): Softwares, Procurement, Practices, Usage and Challenges | Artificial Intelligence: Representation of Knowledge & Beyond (Part-2) |
| Collection Development with Special Reference to eBooks | Application of Artificial Intelligence and Machine Learning in Library Operations and Services |
| QR Code and Useful Applications in Libraries | Academic Integrity and Plagiarism in Research |
| Web 2.0 and Web 3.0 and its Applications in Library Services | Library and Information Science Research: Trends & Issues |
| Single Search to Library Resources: Federated Search and Web-Scale Discovery Services | Predatory Publishing: Issues and Challenges |
| Enhancing Access to Library Resources: A Critical Discussion, Examination, and Evaluation of Web-Scale Discovery Services | Understanding the Structure and Dynamics of Research Activity through Publication Based Indicators |
| Designing the Intelligent Library Search Service (Additional) | Scientometrics and Altmetrics: Trends & Issues |
| RFID Implementation in Libraries | Exploring Altmetrics |
| Remote Access to E-Resources: Anywhere, Anytime | Indian Research Information Network System (Additional) |
| Internet of Things for Libraries | Mobile Based Library Services |
| Crowdsourcing and Crowdfunding with Special Reference to Libraries | Reference Management |
| Big Data and Data Visualization | E-learning and MOOCs: Role of Libraries |
| Research Data Management in Higher Educational Institutions | Human Resources in Library Profession in the Digital Era |
| Content Management System | Marketing of Library Products and Services |
| | Market Your Library (Additional) |
| | Makerspaces and the Libraries (Additional) |

professionals, Kaushik[5], defined the concepts and different arguments related to this profession in the MOOC platform. Ecclestone[6,] in a study, finds that MOOCs is not just a massive online course; it can also play a role as a professional development tool for the librarians. Similarly, Stephens and Jones[7], conducted a study where they empirically addressed that the students use the MOOCs platform for professional development and there is a significant opportunity for LIS programs to serve the profession on a large-scale. Another relevant study was conducted by Stephens and Jones[8] to explain the role and different perceptions of librarians and information professionals participating in a LIS MOOCs. In a recent study,

Dey[9], explains about MOOCs, various forms of MOOCs, and the opportunities of MOOCs in India. The author also explains the library and library professional's participation in MOOCs and different roles for enduring professional development.

Apart from the above studies on MOOCs platform, there have been few studies carried out on the potential issues and hurdles that occurred during such online courses. Gore[15] raised the issues and challenges faced by libraries in the emergence of online learning systems like MOOCs and reviews the roles of a librarian to take up the challenges as a new dimension in the development of the academic library services. Bansode[16] highlighted some important challenges and

Figure 2. ETTLIS course landing page[2]

issues in MOOCs in the LIS domain in the Indian scenario. In another way, Pujar and Tadasad[17] explored a new model of education to overcome the lack of teachers' restrictions, variable skill levels, the paucity of funds and limited infrastructure in LIS education in developing countries like India. Similarly, another related study of a developing country conducted by Asundi and Karisiddappa[18], presents a succinct profile and contributions of Indian LIS education since its inception. Due to many reasons, students used to leave the online courses during the middle of the session and sometimes it becomes complicated to measure why students drop out of the courses after enrolment. To measure this impact Rosé et al. .[19] used a survival model by considering different social factors among students. In another study conducted on MOOCs by considering the social network perspective, the authors Kellogg, et al. assumes that the robust online community forum can solve the problem of the students[20].



Figure 3. YouTube channel of the ETTLIS course[10].

## 4. SCOPE OF ETTLIS AND ARPIT 2019

This course is helpful in keeping abreast of new trends and technologies that emerged in the library and information systems and services. It is an effort to assist:

- To enhance professional competence and skills
- To engage in collaborative teamwork
- To take library and information services beyond the four walls of the libraries
- To use ICT tools for effective user services
- To produce need-based instructional materials for the users
- To discover new areas of research and inquiry in the field of library and information science
- To explore the application of Machine Learning, Artificial Intelligence, and other technologies to serve the library community
- To identify new roles for LIS Professionals to survive in the changed LIS Environment.

## 5. OBJECTIVES OF ETTLIS

The online courses using MOOCs have brought a new phenomenon in E-Learning using ICT and helps learn about emerging technologies to develop professional skills successfully from anywhere and anytime. By following the same path, the ETTLIS course helps the learners to make them aware of new trends, technologies, and developments in the field of library systems and services. The objectives of the course include but not limited to:

- The recognition of the library system is very important to fulfill the social needs of the institution
- To engage the libraries and library professionals in changing the environment by prevailing themselves through ICT
- To make aware of the users for their transformation by accessing through available resources, services, and products of the libraries
- To make every educational institution feel the presence of the libraries and librarians for their national and international growth
- To impart knowledge of emerging trends and technologies in the library and information sources, services and products and in the allied areas
- To help learners to become a smart librarian by providing smart reference services.

## 6. ETTLIS APPROACH TO LIS PROFESSIONALS[2]

ICT has brought great importance to the library systems from various dimensions and at the same time, it has posed a serious challenge to our existence. Many libraries have yet not implemented, or many library professionals are not much aware of these new trends and technologies. Therefore, there was always a scope of an improved professional platform to spread this kind of approach. By using the SWAYAM platform, the Central Library of IIT Delhi took the initiative to provide guidelines and contents for improving libraries and the status of library professionals through the ETTLIS online course. The concept of ETTLIS is to bring fresh opportunities for library professionals to explore their knowledge and to develop their

technical skills by implementing these at their workplaces. The uniqueness of this course is that, every module has been embedded with the theoretical formation and a technical approach. The Librarianship and Library/Information Centres at Rural, District, or State Level can be updated and upgraded by learning through this ETTLIS course.

Following are the possible approaches through which libraries and librarians can be benefited:

### 6.1 Collect Various Educational Resources in the Various Subject Areas of Interest

To prepare to conduct this course, various contents have been collected from different subject areas. The contents of this course may help learners to understand their concerning area of interest, as listed in Section **7**.

### 6.2 Renowned Resource Persons from Different Allied Fields

To develop the contents for ETTLIS, the NRC invited various domain and allied subject experts to share their knowledge and expertise in the form of video lectures in the controlled professional studio environment with PPTs and Text at IIT Delhi.

### 6.3 Advanced Trends and Technological Modules

The base of the contents is from traditional to, as to how the new trends and technologies can be applied. This has been reflected in the various modules.

### 6.4 Opportunity to Access and Preserve Course Contents

This course not only offers to register and access the material, but learners also have an opportunity to preserve the contents from different platforms for further reuse. In this regard, libraries may also play an important role in preserving all the modules for future reference. The IIT Delhi library has also given links to all the Videos and PPTs of the course ETTLIS for easy access for non-enrolled learners as well through its landing page at: http://library.iitd.ac.in

### 6.5 Promote Resources Through Different Channels

Despite the official SWAYAM platform and its communications, the ETTLIS course has been promoted through different social media channels, including Facebook, LinkedIn, Twitter, WhatsApp, Google Drive, YouTube Channel, Library Website, etc. This has resulted in an unexcepted 2980 enrolled learners for 2019 from different parts of the globe.

### 6.6 Inspire Library Professionals to Cope Up With Recent Library Systems

Another approach of this course is to inspire all the library professionals to learn and implement their skills and cope up with recent technologies that are applied in the library systems.

### 6.7 Provide an Opportunity for Professional Development

This refresher course/faculty development programme

**Figure 4. Permanent link to ETTLIS course contents from central library of IIT Delhi[21].**

helps every library professional to understand their needs and requirement for developing their professional career. One ARPIT course is considered equivalent to one physical refresher course in case of promotion for the cadre of librarians and library science teachers as per the notification from the University Grants Commission, New Delhi, D.O.No.F.2-16/2002(PS),Pt.fl.II, dated December 3, 2018.

**6.8 Excessive Support from the Course Community**

Apart from the course modules, the main approach is to support and interact with every learner by using ETTLIS's community service platform or Online Discussion Forum which until April 17, 2020 has discussed more than 583 topics.

**7. TOPICS IN ETTLIS COURSE**

To help in professional development and career progression and to improve the quality of library resources, services and products, the course covers interesting topics. The experts from domain and allied fields from industry, academia and professional librarianship were invited to develop video and text contents in the controlled professional studio environment. The ETTLIS course has about 20 hours of video contents on topics of emerging trends & technologies in library & information services and about 20 hours of non-video contents. There are also four additional modules as relevant extra reading material, which have been considered important keeping in view the theme of the ETTLIS and due to restriction of 40 modules only. The list of ETTLIS course contents has been given in Table 3, which provides a comprehensive overview of the topics for the learners.

**8. FINDINGS**

This section analyses the number of learners that are intended to view different video modules and their likeness on those video modules for each week on YouTube Channel. Moreover, it further intends to check whether the learners keep their interest in a linear pattern or non-linear pattern while using social platforms.

To perform this analysis, the authors first normalised the obtained results by following simple formula:

$$z_i = \frac{(x_i - \min(x))}{(\max(x) - \min(x))} \tag{1}$$

where $z_i$ is the $i^{th}$ which normalises the value of Views (similarly, normalises the value of Likes) and $x = (x_1,...,x_n)$ of all views (similarly, all Likes). Normalisation means, the scaling down of the datasets and the value of the data will be in the range between 0 and 1.

Figure 5 shows the total number of views and likes on different modules over the weeks using the YouTube Channel of the ETTLIS course. Overall, learners believed that MOOCs provide a convenient opportunity to learn something new through an online platform. However, the analysis shows that the interest in watching the video modules is decreasing (i.e.,
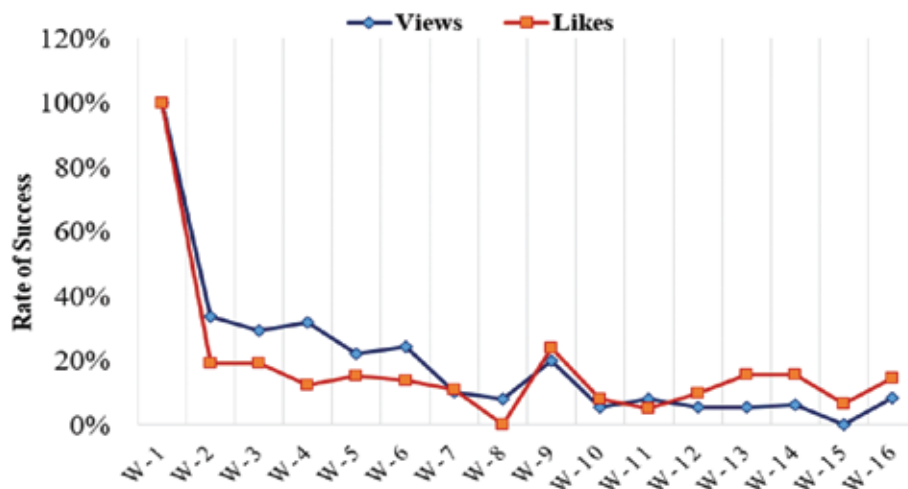
**Figure 5. Week wise views and likes of all modules[10].**

maximum is less than 20 %) as compared to the beginning weeks (if we consider the initial stage as 100 %). It means the initial stage of the learning process is always high. This may simply be because, the people sometimes use to watch the downloaded videos and the course invites more attention in the initial weeks. The channel may see increasing trends again and the Views and Likes may increase again while learners are close to Online Exam dates conducted by NTA, out of those Videos. The Links to these contents have also been given from the Central Library, IIT Delhi website as well and the same are also proposed to be uploaded on DSpace based Institutional Repository of the Library apart from Links from Google Drive.

## 9.  DISCUSSION

MOOCs provide extensive opportunities to explore a wide range of potentials to update and develop skills through qualitative video lectures and resources. In every profession, especially in the library and information science, learners can get opportunities to learn a variety of subjects from their dearest preceptors. However, there is always a gap between traditional and online pedagogy. The biggest problem is that the learners take the initiative to join the course, but many of them do not complete the full course to the national level of examination. Even due to a lack of technological literacy, many learners avoid joining online courses. Therefore, promotion through different channels and support by different communities is essential. The promotion channels can be different social media tools, blogs, institutional websites, forums, etc. However, it is believed that the libraries are the heart of the institute and are the best platform to promote online courses. As a reference service, library staff must encourage the learners to use such kinds of MOOCs platform.

## 10.  CONCLUSIONS

Despite the technological limitations, MOOCs provide enormous opportunities and challenges for every professional in their respective subject of interest. Nowadays, libraries and library professionals are also taking initiatives to explore new trends and technologies by adopting different MOOCs. The ultimate mission of MOOCs is to support all learners to

fulfill their academic and professional needs and think out of the box for their career sustenance and progression. By considering this kind of aspiration, the Central Library, IIT Delhi, explored and got an opportunity to serve all the library professionals to help develop their skills by adopting the ETTLIS course. With the help of this course, professionals might be able to understand that now the librarians and information scientists are needed for packaging and repackaging of information or knowledge organisation and dissemination, for reference purpose, to advise the users about the strategy to identify relevant electronic sources, etc. The course will also help to understand that if the users cannot come to the library, let the library reach to them as per their convenience and the way they want using emerging trends and technologies. Now is time to "think globally and act locally" and to be architect NOT a victim of the change due to the impact of ICT on library resources, services, and products. In a real sense, the notion of ETTLIS helps libraries and library professionals fulfill the primary roles/duties of the Librarianship.

## REFERENCES

1. SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) https://swayam.gov.in/ (accessed on February 10, 2020).

2. ETTLIS (Emerging Trends & Technologies in Library & Information Services) https://swayam.gov.in/nd2_arp19_ ap78/preview (accessed on February 10, 2020).

3. Nisha, F. & Senthil, V. MOOCs: Changing trend towards open distance learning with special reference to India. *DESIDOC J. Lib. Inf. Technol.*, 2015, **35**(2), 82-89. doi: 10.14429/djlit.35.2.8191.

4. Pathak, D. & Das, K. Linking, improving, status, career: Making in library and information science MOOC. In 10th international CALIBER 2015: Innovative librarianship: Adapting to digital realities, 12-14 March 2015, Shimla, HP. 2015, 383-389.

5. Kaushik, A. Massive open online course (MOOC): A new online learning approach to LIS professionals. *Libr. Waves*, 2015, **1**(2), 110-118.

6. Ecclestone, M. MOOCs as a professional development tool for librarians, Partnership, *Can. J. Libr. Inf. Pract. Res.*, 2013, **8**(2), 1-6. doi: 10.21083/partnership.v8i2.2797.

7. Stephens, M. & Jones, K.L. MOOCs as LIS professional development platforms: Evaluating and refining SJSU's first not-for-credit MOOC. *J. Educ. Libr. Inf. Sci.*, 2014, **55**(4), 345-361.

8. Stephens, M. & Jones, K.M. Emerging roles: Key insights from librarians in a massive open online course. *J. Libr. Inf. Serv. Distance Learn.*, 2015, **9**(1/2), 133-147.

9. Dey, M. Massive open online course (MOOC): With special reference to library and information science professionals in India. *Int. J. Adv. Sci. Technol.*, 2019,

**28**(18), 414-423.

10. ARP19 AP78: ETTLIS YouTube Channel https://www. youtube.com/channel/UCiZemX3cWc8181Z0fejg7Nw/ videos (accessed February 10, 2020)

11. Hasan, N. ARPIT with special reference to ETTLIS. Presentation delivered in the Seminar on Bridging Educational Divides through MOOCs and OERs, National Law University Delhi, November 23, 2019.

12. Central Library, IIT Delhi http://library.iitd.ac.in (accessed on February 10, 2020).

13. IIT Delhi http://www.iitd.ac.in (accessed on February 10, 2020).

14. ETTLIS ARPIT Drive: https://drive.google.com/drive/fol ders/1r9Iepn8cbHV5FXhBHDzy6HIzt0XW9M6U?usp= sharing (accessed on February 10, 2020).

15. Gore, H. Massive open online courses (MOOCs) and their impact on academic library services: Exploring the issues and challenges. *New Rev. Acad. Libr.*, 2014, **20**(1), 4-28. doi: 10.1080/13614533.2013.851609.

16. Bansode, S.Y. Library and information science MOOCs: An Indian scenario. *Annals Libr. Inf. Stud.*, 2019, **66**(1), 39-45.

17. Pujar, S.M & Tadasad, G.P. MOOCs – An opportunity for international collaboration in LIS education. A developing country's perspective. *New Libr. World | Emerald Insight*, 2016, **117**(5/6), 360-373. doi: 10.1108/NLW-07-2015-0048.

18. Asundi, A.Y & Karisiddappa, C.R. *DESIDOC Bull. Inf. Technol.*, 2006, **27**(2), 5-11. doi: 10.14429/djlit.27.2.127.

19. Rosé, C.P.; Carlson, R.; Yang, D.; Wen, M.; Resnick, L.; Goldman, P. & Sherer, J. Social factors that contribute to attrition in MOOCs. *In* L@S 2014: Proceedings of the 1st ACM Conference on Learning at Scale, 2014, 197–198. doi: 10.1145/2556325.2567879.

20. Kellogg, S., Booth, S. & Oliver, K. A social network perspective on peer supported learning in MOOCs for educators. *Int. Rev. Res. Open Distance Learn.*, 2014, **15**(5), 263–289. doi: 10.19173/irrodl.v15i5.1852.

21. Central Library IIT Delhi ETTLIS Webpage http://library. iitd.ac.in/arpit2019  (accessed on April 17, 2020).

## CONTRIBUTORS

**Dr Nabi Hasan** is the Librarian & Head, Central Library, Indian Institute of Technology Delhi and currently heading the National Resource Centre in Library and Information Sciences of the Ministry of HRD, Govt. of India as Coordinator under its ARPIT (ETTLIS) program.
He has developed this paper in the present form based on data and contents so contributed by the second author.

**Mr Debashis Naskar** is presently working as a Project Scientist at IIT Delhi Central Library. He has completed BLISc from Calcutta University, obtained MS-LISc from DRTC and is a Doctoral student of Computer Science at Polytechnic University of Valencia, Spain. He has equally contributed by collecting the data, writing a review and analysing it.