AN ANALYTICAL STUDY OF E-LEARNING INITIATIVES IN LIBRARY AND INFORMATION SCIENCE SECTOR IN INDIA

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DECLARATION

I hereby, declare that the thesis entitled, **"AN ANALYTICAL STUDY OF E-LEARNING INITIATIVES IN LIBRARY AND INFORMATION SCIENCE SECTOR IN INDIA"**being submitted for the award of degree of Doctor of Philosophy (Ph. D) in Library and Information Science, Vardhman Mahaveer Open University, Kota is a bonafide and genuine research work carried out by me. The work is original and has not been submitted previously to any other university for any other degree. I have carried out the present research under the competent and skilful guidance and supervision of **Prof. (Dr.) Dinesh K. Gupta**, Professor, Department of Library and Information Science, Central University of Haryana, Mahendragarh (Ex-Professor, Department of Library and Information Science, Vardhman Mahaveer Open University, Kota). The sources of material used and all assistance received during the course of research have been duly acknowledged.

The thesis has been submitted in accordance with the "University Grants Commission Minimum Standards and Procedure for award of Ph.D. Degree, Regulations 2009".

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CERTIFICATE

This is to certify that the thesis entitled,**"AN ANALYTICAL STUDY OF E-LEARNING INITIATIVES IN LIBRARY AND INFORMATION SCIENCE SECTOR IN INDIA",** submitted for award of the degree of Ph.D. in Library and Information Science, Vardhman Mahaveer Open University, Kota, is a genuine and bonafide work carried out by **Mrs. Neelam Kabra** under **my supervision and guidance**. The complete work has been carried out by her and no part of this thesis work has been submitted previously by her to this University or any other University for any degree.

She has fulfilled the requirements necessary for the degree of Doctor of Philosophy in Library and Information Science at Vardhman Mahaveer Open University, Kota Rajasthan, regarding the nature and the prescribed period of work as per UGC Ph.D. Regulations, 2009.

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The course work has been completed in accordance with the "University Grants Commission (Minimum Standards and Procedure for award of Ph.D. Degree), Regulations 2009".

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The Pre-Ph.D. Submission Seminar presentation also has been given in accordance with the "University Grants Commission (Minimum Standards and Procedure for award of Ph.D. Degree), Regulations 2009".

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Place: Kota **NEELAM KABRA**

Date:

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LIST OF ABBREVIATIONS

AICTE	All India Council for Technical Education
AKTU	Abdul Kalam Technical University
ALA	American Library Association
ALCTS	Association for Library Collections and Technical Services
ARIIA	Atal Ranking of Institutions on Innovation Achievements
ARPIT	Annual Refresher Programme in Teaching
AVRC	Audio Visual Research Centre
BISAG	Bhaskaracharya Institute For Space Applications and Geo-Informatics
BLIS	Bachelor of Library & Information Science
BOU	Bangladesh Open University
CAC	Content Advisory Committee
CAL	Computer assisted learning
CAS	Current Awareness Service
CBL	Computer Based Learning
CCSL	Cambridge Crystallographic Subroutine Library
CDOE	Centre for Distance and Online Education
CEC	Consortium for Educational Communication
CICTAL	Certificate in ICT Applications in Library
CIET	Central Institute of Educational Technology-
NCERT	National Council of Educational Research and Training
CLIS	Certificate in Library and Information Science
CMS	content management system
COE	Centre for Online Education
CPDL	Certificate Programme on Digital libraries
CSIR	Council of Scientific and Industrial Research

NISCAIR	National Institute of Science Communication and. Information Resources
CVL	CDSL Ventures Limited
D.El.Ed.	Diploma in Elementary Education
DDE	Directorate of Distance Education
DELNET	Developing Library Network
DEPLIS	Distance Education Programmes for Library and Information Studies
DfES	Department for Education and Skills
DIKSHA	Digital Infrastructure for Knowledge Sharing
DOAJ	Directory of Open Access Journals
DOD	Department of Design, Guwahati
DRTC	Documentation Research and Training Centre
DTH	direct-to-home
DVR	Digital Video Repository
EDUSAT	Educational Satellite
EEDP	Early Education Development Programme
E-LEARNING	electronic learning
EMRC	Educational Multimedia Research Center
FLOSS	Free/Libre and Open Source Software
FOA	Fundamentals of Acquisitions
FOSS	Free and open-source software
FOSSEE	Free/Libre and Open Source Software in Education)
GDP	Gross domestic product
CANARIE	Canadian Network for Advancement of Research, Industry and Education
CLOE	Cooperative Learning Object Exchange
GOI	Government of India

GIAN	Global Initiative of Academic Networks
GSAT	Geosynchronous satellites
HEI	Higher Education Information
HMSCL	Haryana Medical Services Corporation Limited
HRDC	Human Resource Development Centre
ICT	Information and Communications Technology
IDC	Industrial Design Centre, Mumbai
IGNOU	Indira Gandhi National Open University
IJOL	Indian Journal of Open Learning
ILA	Indian Library Association
ILLL	Institute of Lifelong Learning
IMPRINT	Impacting Research Innovation and Technology
INDEST	Indian National Digital Library in Engineering Sciences and Technology
INFLIBNET	Information and Library Network
IUCTE	Inter University Center for Teacher Education
IUC-TEFED	Inter University Consortium for Technology Enabled Flexible Education and Development
KVS	Kendriya Vidyalaya Sangthan
LAMP	Library Automation and Management Program
LDL	Librarian's Digital Library
LIS	Library and Information Science
LISTA	Library, Information Science and Technology Abstracts
LIVE	Library and Information Virtual Education
LMS	Learning Management System
LOR	Learning Object Repository
MERLOT	Multimedia Educational Resource for Learning and Online Teaching

MHRD	Ministry of Human Resource Development
MIT	Massachusetts Institute of Technology
MLIS	Master of Library and Information Science
MMR	Mixed Method Research
MOOC	Massive Open Online Courses
MOODLE	Modular Object-Oriented Dynamic Learning Environment
NAD	National Academic Depository
NCERT	National Council of Educational Research and Training
NCL	Networked Collaborative Learning
NDLI	National Digital Library of India
NEP	National Education Policy
NETF	National Educational Technology Forum
NIC	National Information Centre
NID	National Institute of Design
NIOS	National Institute of Open Schooling
NIRF	National Institute Ranking Framework
NITTTER	National Institute of Technical Teachers Training and Research
NKC	National Knowledge Commission
NKN	National Knowledge Network
NLIST	National Library and Information Services Infrastructure for Scholarly Content
NLN	National Learning Network
NMEICT	National Mission on Education through Information and Communication Technology
NODLINET	National Open and Distance Learners' Library and Information Network
NOUN	National Open University of Nigeria
NPTEL	National Programme on Technology Enhanced Learning
NROER	National Repository of Open Educational Resources

NSDL	National Science Digital Library
NTFITSD	National Task Force on Information Technology and Software Development
NVS	Navodyaya Vidyalaya Sangthan
OBE	Outcome Based Education
ODL	open and distance learning
OER	Open Educational Resources
ORBL	online resource based learning
OSCAR	Open Source Courseware Animations Repository
PGDLAN	Post Graduate Diploma in Library Automation and Networking
SCL	Computer Supported Collaborative Learning
SLM	Self Learning Material
SOSS	School of Social Sciences
SOS-Tools	Software & Simulation Tools
SPOC	Single Point of Contact
SWAYAM	Study Webs of ActivE-learning for Young Aspiring Minds
TISS	Tata Institute of Social Sciences
TLP	Teaching-Learning Process
UGC	University Grants Commission
UIDAI	Unique Identification Authority of India
UIN	Universitas Islam Negeri
UINSU	Universitas Islam Negeri Sumatera Utara Medan
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
SALIS	Society for the Advancement of Library and Information Science.
URI	Uniform Resource Identifier
USA	United States of America

VET	vocational education and training
VLE	Virtual Learning Environment
WBeL	Web Based E-learning
WBT	Web Based Training
YCMOU	Yashwantrao Chavan Maharashtra Open University

Chapter-1

Introduction

1.0 Introduction

Learning skills are becoming important day by day due to the fast-changing information economy, as the shelf life of information and knowledge is becoming shorter and shorter. It has been considered one of the most essential skills to be required amongst the employment seeker now a day. Learning for life has been a reality now. Learning is an ongoing process for any development, may it be of an individual or of the society itself. For progress, increase in the present knowledge, increase in the efficiency to take decisions, and implementation of the information, communication and technology, learning and continuous learning is the only key to go forward. ICT has brought about changes in the way people think, understand and do work for gaining knowledge. E-learning is a master key in the present era to achieve targets without wasting much time. The role of E-learning is continuously growing throughout the world. It is being widely used in educational institutions as well as in the field of corporate learning and training of the citizens for a common cause. E-learning is an area that is gaining momentum in elite education in India. The pandemic of CORONA-19 has accelerated the progress of E-learning in all sectors of learning.

It has undergone various stages starting from static content making available to the learners, progressing to the multi-media and interactive media, even up to the extent of award of degrees using E-learning in the form of online degrees and diplomas. Meaning thereby all academic activities from admission to evaluation and also from content creation to content delivery are parts of E-learning and can be performed through an E-learning platform. The present study deals with the conduction and scenario of education and training in E-learning mode in the LIS sector in our country.

1.1. Concept of E-learning

E-learning is a comprehensive term that is used for learning through the web, learning online, blended learning, learning with a network, distributed learning,

flexible learning and so on. However, it is even now, arising as a distinguished educational field. The writers and scholars in the present time discuss E-learning as a major topic and use it in many ways, but they usually agree about its similarity with online learning.

Lihitkar (2013) considers that:

"E-learning is learning attempted through electronic means for achieving the computer and network-enabled transfer of skills. E-learning is a growing and dynamic environment which has given a new shape to higher education besides classroom teaching. The term E-learning is used in different ways such as online learning, computer-based learning (CBL), web-based training (WBT), online resource-based learning (ORBL), networked collaborative learning (NCL) and also computer-supported collaborative learning (SCL)."

According to Bhabal (2008)

"The term E-learning is used in diversified ways which comprise terms such as online learning, Computer Based Learning (CBL), Web-Based Training (WBT), Online Resource-Based Learning (ORBL), Networked Collaborative Learning (NCL) and Computer-Supported Collaborative Learning."

According to Eke (2010)

"E-learning could be interpreted as electronic learning, learning that involves the use of Internet, learning from a distance via the aid of Internet and or other electronic gadgets."

Govindasamy (2002) defines

"E-learning as an instruction that is delivered by way of almost all electronic media, including the Internet, intranets, extranets, satellite broadcasts, audio/videotape, interactive TV and CD-ROM."

According to Ruiz et al (2006),

"E-learning refers to the use of Internet technologies to deliver a broad array of learning modes that enhance learner's knowledge and performance."

Other definition cited in **Abrami et al (2006)** given by the Canadian Council on Learning defined

"E-learning as the development of knowledge and skills through the use of Information and Communication Technologies (ICTs), particularly, to support interactions for learning – including interactions with content, with learning activities and tools, and with other people. In this context, E-learning involves a wide variety of learning interactions that encompass contents, activities, tools, as well as people."

Meanwhile, **Waterhouse (2005)** extended that E-learning entails to improve teaching as well as learning with the use of instructional strategies enhanced by technology, particularly computer technology.

While discussing E-learning in LIS education, **Islam, Chowdhury, and Islam (2009)**, summed up "the main characteristics of E-learning in the following ways:

1. Learning is facilitated and supported through the use of Information and Communication Technologies.
2. Education is provided using electronic delivery methods such as CD-ROMS, video conferencing, websites and e-mail, commonly used in distance learning programs.
3. Education is normally accomplished over the Internet, computer network, and via CD-ROM, as well as by interactive TV or satellite broadcast."

Analyzing the various definitions of E-learning, for this study, E-learning has been defined as "the use of online technologies for performing teaching and learning in any of the three manners such as:

1. Completely online,
2. Blended learning (mix of face-to-face and online), and
3. Use of online as supplementary to face-to-face for some activities." **(Pulist, 2013)**

However, while looking at the development of E-learning, it is described as below:

Table 1.1 "Historical context of E-learning development"

Era	Focus	Educational Characteristics
"1975-1985"	"Drill and practice: Programming:Computer-assisted learning – CAL"	"Behaviorist approaches to learning and nstruction; Programming to build tools and solve problems; Local user-computer interaction."
"1983-1990"	"Computer-Based Training Multimedia"	"Use of older CAL models with interactive multimedia courseware; Passive learner models dominant; Constructive influences begin to appear in educational software design and use."
"1990-1995"	"Web-Based Training"	"Internet-based content delivery; Active learner models development; Constructivist perspectives common; Limited end-user interactions."
"1995-2005"	"E-learning"	"Internet-based flexible courseware delivery; increased interactivity; online multimedia courseware; Distributed constructivist and cognitive models common; Social networking; Remote user-user interactions."

The recent technological support makes E-learning a substitute for face-to-face corporate training and is also becoming a viable tool for providing E-learning in the conventional educational institutions using appropriate content, pedagogy, delivery and evaluation. E-learning has expanded its wings even in face-to-face learning, and blended learning is being considered a future mode of learning even in campus-based learning.

1.2 Related Terms

The world of teaching and learning has adopted technologies that have emerged with the World Wide Web. The forms of technology-supported learning remain changing. Large-scale use of the internet or web in studies is a novel area in the knowledge field and many different terms are used to outline it. The common terms that are used synonymously are:

Virtual Learning: "It is the focusing on teaching and learning interactions mediated entirely through the application of information and communication technologies". **(Farrell & Commonwealth of Learning (Canada), 1999)**

"***E-learning***: It is commonly referred to as the intentional use of networked information and communications technology in teaching and learning." **(Naidu, 2006)**

"***Online Learning***: Refers to a mode of providing flexible learning opportunities by overcoming the separation of teacher and learner using the internet, E-learning materials and full-fledged program delivery through the internet using technology-assisted mechanisms and resources." **(UGC - Open and Distance Learning Programmes and Online Programmes Regulations, 2020)**

"***Technology Enabled Learning***: It means the application of some form of digital technology in teaching and/or learning in an educational context. It is not necessary to get into discussions about whether the learning context can be thought of as formal, non-formal or informal." **(Kirkwood, A., & Price, L., 2016)**

"***Remote Learning***: Learning that occurs when the learner and the instructor, or source of information, are separated physically and hence cannot meet in a traditional classroom setting – it includes "online learning" as well as lower-tech remote learning options (e.g., TV, radio, mail)." **(UNESCO, 2020)**

Fundamentally, the above-mentioned terms refer to the use of information communication technologies to mediate both asynchronous and synchronous teaching and learning activities. The term E-learning comprises a lot more than online learning, virtual learning, or web-based learning. As the "e" component in E-learning stands for "electronic", E-learning may be incorporated in all educational activities which may be carried out by an individual or group of individuals working both online and offline, and also both synchronously and asynchronously via networked or standalone computers and any other electronic devices.

Further UGC Regulations clarified E-learning materials as:

"E-learning Material, means and includes contents in the form of structured course material, as a part of one or more courses in the Online Programme, in digital format delivered through Learning Management System, which is inter alia self-explanatory, self-contained, self-directed at the learner, and amenable to self-evaluation, and enables the learner to acquire the prescribed level of learning in a course of study, but does not include text-books or guide-books, as defined in these regulations."

So, here for this research, the terms virtual learning, online learning, E-learning and technology-enabled learning have been used interchangeably and the focus would be on E-learning.

1.3 Methods of E-learning

E-learning is divided into two methods:

Synchronous E-learning, and

Asynchronous E-learning.

The learners are benefited from accessing materials by the use of these two methods for delivering E-learning at any time.

In the synchronous method of E-learning, the learner attends class virtually as per schedule where the instructor and the co-learners also remain available online from different locations. They all participate in real-time delivery of courses and content, participate in discussions during class time, improve presentation skills and do other activities.

In asynchronous E-learning, the learner has an opportunity to have e-content in any form (audio, video, text, presentation, assignment, recorded discussions, etc.) and she/he can use the content as per convenience. It can be accessed anytime, anywhere. Sometimes, particularly in MOOCs, such content is made available on a week-to-week basis and the learner completes the assigned work on week to week basis. Assignments and activities are enabled with this component and the technology also supports receiving feedback. The convenience of learners remains at the center of the schedule of content delivery. Students are free to take up classes from anywhere and communicate with teachers through messages and e-mail and other asynchronous communication methods.

The major difference between the synchronous and asynchronous modes of E-learning is presented in the following table:

Table 1.2 Difference between synchronous and asynchronous E-learning

Live, Virtual Session (Synchronous)	**Recorded (Asynchronous)**
The learning environment consists of: Multiple people; can include group discussions, breakouts and polls	**The learning environment consists of:** One person, alone; with no live interaction with others or with the technology
Question – asking and clarifying take place: In real-time	**Question – asking and clarifying take place:** After the fact
Learning structure: Learners are thoroughly supported, have a set time and place to learn, receive a calendar invite and reminders, and have easy access to the learning event.	**Learning structure:** Learners must set their own time and place to learn and must seek out a recorded video.

(Source: Recording a Learning Session Doesn't Work for Asynchronous Learners (trainingindustry.com), accessed on 16.01.2022)

1.4 E-learning Policies in India

There are many policy documents available in the country which discuss the online/E-learning in the country. Some of the important policy documents/guidelines include:

1. NMEICT Mission document:

NMEICT has been a centrally funded mission to use the vast potential of ICT, in higher learning institutions for teaching as well as learning at any time and any place manner. Its main features are:

Provide Access - Connectivity to all higher institutions in the country.

Provide Quality - High-quality e-content to be made available to all learners free of cost.

"Bridge the digital divide" - Narrow the skill gaps of teachers or learners in the rural versus the urban areas involved in the Higher Education system to efficiently use electronic devices for teaching and learning.

Training of trainers – Train the teachers and empower them to effectively use the new teaching and learning methods.

Provide Equity – To offer cheap and economical use of the electronic instruments to be used for the teachers as well as students.

Provide Connectivity - Providing connectivity, as well as access to devices for institutions and learners.

Empower teachers/learners - Empower those, who have yet been untouched by the digital revolution and are unable to join the mainstream of the knowledge economy till now.

E-learning - Focus on the online availability of teachers and mentor to guide the learners and also online testing and certification.

2. National Knowledge Commission. (2009). National Knowledge Commission. Report to the Nation 2006-2009:

It came into force on 13th June 2005 and was founded by the Prime Minister of India, Sh. Manmohan Singh Ji with a work time of three years and was supposed to advise the PM on policies to make India competitive with the world in terms of the knowledge economy. Its recommendations were for the Public Libraries system in the country and were related to the education sector, research institutions/ Labs and intellectual reforms. The report of NKC was termed "**Libraries as Gateways to Knowledge**."

3. NMEICT, Open educational Resource policy:

The NME-ICT is now a day imparting the requisite thrust for OER development throughout India.

NME-ICT is being intended with the purpose of generation of e-contents in different subjects and also for the execution of faster broadband connectivity to be bestowed to colleges and universities. "Nearly 404 universities and 19,851 colleges have been customized under the scheme or have been allocated VPN (virtual private

network) connectivity. More than 250 courses have been finalized and made available in NPTEL Phase I and another 996 courses are being generated in Phase II of NPTEL by IIT Madras. The low-cost access-cum-computing device Aakash 2 was launched on 11 November 2012. Using the A-View software developed under the NMEICT, several programs for teachers' empowerment have been conducted for batches of 1,000 teachers at a time by IIT Mumbai."

4. UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016:

"UGC has announced its Credit Framework for Online Learning Courses through SWAYAM Regulation, 2016, by publication in the Official Gazette of India on 19th July 2016. The Indian version of online learning is an indigenous platform of learning, named SWAYAM (Study Web of Active Learning by Young and Aspiring Minds),

It would allow a seamless connection between online learning and regular classroom learning. A certificate regarding successful completion of the MOOCs course (through the SWYAM platform) shall be signed by the Parent Institution and issued through the Host Institution and sent to the PI.

No university shall refuse any student for credit mobility for the courses earned through MOOCs."

5. Ministry of Human Resource Development, Department of Higher Education, Guidelines for Development and Implementation of MOOCs (2017):

"To provide access to the best quality learning resources across the country, the project "Study Webs of Active Learning for Young Aspiring Minds" (SWAYAM) has been started. It provides an integrated platform and portal for online courses, using ICT and covering High School up to all higher education subjects and skill sector courses to ensure that every student benefits from learning material through ICT.

SWAYAM involves the development of Massive Open Online Courses (MOOCs) compliant e-content (video and text) and building a robust IT platform."

"**MOOCs**: Massive Open Online Courses (MOOCs) are such online courses that are developed as per the pedagogy stated herein and following the four-quadrant approach.

Four quadrant approach: The four Quadrant approach of E-learning has the following components:

Quadrant-I is e-Tutorial.

Quadrant-II is e-Content.

Quadrant-III is the Discussion forum.

Quadrant-IV is Assessment."

6. UGC (Online Courses or Programmes) Regulations, 2018:

"Higher Educational institutions should have the demonstrated capability for developing and production of Online Courses or Programmes as E-contents in the form of a combination of the following:-

(a) e-Text Materials,

(b) Video Lectures,

(c) Audio-Visual interactive material,

(d) Virtual Classroom sessions,

(e) Audio Podcasts,

(f) Virtual Simulation, and

(g) Self-Assessment Quizzes or Tests

Learners Support Services and E-learning Materials - Higher Educational Institutions shall provide adequate support for advising, counseling, mentoring, and guidance to ensure the best possible learning experience for the learners and there shall be clear guidelines on academic integrity and netiquette (internet etiquette) expectations regarding lesson activities, group discussions, chats as well as plagiarism."

7. UGC (Open and Distance Learning Education) Regulations 2017:

"A Higher Educational Institution shall plan, implement, coordinate and monitor operationalization and quality assurance of the programs in Open and

Distance Learning mode, including monitoring the conduct and program delivery by the Learner Support Centres and shall ensure adherence to the regulations and guidelines of the Commission and other regulatory authorities.

A Higher Educational Institution offering program (s) in Open and Distance Learning mode shall take measures necessary to blend ICT including those developed by NME-ICT, for enhancing the effectiveness of the teaching-learning process, and administrative functioning and for maintenance of updated information at all times in respect to the status of admissions, registration, for managing teaching-learning activities through on-line support for interactive learning with learner feedback, to facilitate the use of OER, MOOCs and for continuous as well as comprehensive evaluation, certification, and other aspects of student support.

The Higher Educational Institution shall create an 'online' discussion forum for learners.

A Higher Educational Institution may allow up to 20% of the total courses being offered in a particular program in a semester through the Online Learning courses/MOOCs as per UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulations, 2016.

Higher Educational institutions shall establish virtual facilities to support blended learning. Learner Support Services shall be provided through the campus-wide portal and E-learning platform. The Institution shall have a sophisticated approach to the use of ICT and expertise in E-learning.

The learner's perspective is an important aspect of quality assurance for E-learning. High-quality E-learning content should be designed by skilled content and instructional design professionals. The key principles of designing E-learning content are (1) consistent layout and design; (2) clear organization and presentation of information; (3) consistent and easy-to-use navigation; and (4) aesthetically pleasing design and graphics."

8. UGC (Open and Distance Learning Programmes and Online Programmes) Regulations, 2020:

"Every Higher Educational Institution eligible and intending to offer a program in Open and Distance Learning mode and/or Online mode from the academic session shall make an application to the UGC.

Territorial Jurisdiction shall not apply to the Higher Educational Institutions for offering recognized Online programs under these regulations.

The application should be accompanied by the demonstrated capability of the Institution for the development and production of Online Programmes, with evidence of the Institution having access to SWAYAM or another learning platform for the proposed programs of study, duly approved by the statutory bodies.

The application of an Open University should be accompanied by having a designated Centre for Online Education (COE) for operationalizing the programs designed and developed by the Schools of Studies for Online Learning mode

A Higher Educational Institution other than an Open University shall have a designated Centre for Distance and Online Education (CDOE) for operationalizing the programs in Open and Distance Learning mode and/or Online mode.

Others as in the above-mentioned policy but with up to 40% of the total courses being offered in a particular program in a semester through the Online Learning courses/MOOCs."

9. UGC, Regulations on Minimum Qualifications for Appointment of Teachers and Other Academic Staff in Universities and Colleges and Measures for the Maintenance of Standards in Higher Education, 2018

"Assessment of the performance of College and University teachers for the CAS promotion is also based on Attending orientation/ refresher/ methodology courses, development of e-contents and MOOCs, organizing seminars/conferences/workshops/ presentation of papers and chairing sessions/ guiding and carrying out research projects and publishing the research output in national and international journals, etc.

One criterion for Promotion is also completing one MOOCs course (with e-certification) or developing e-contents in four-quadrants / MOOC course during the assessment period."

10. UGC, Letter to the Vice-chancellors of all universities regarding equivalence of ARPIT Course as Refresher Course (published on 3rd Dec.2018)

"A unique initiative of online professional development of in-service teachers of higher education, using MOOCs platform SWAYAM-Annual Refresher Programme In Teaching (ARPIT) was launched by MHRD on 13" November 2018. The ARPIT is a 40-hour program with 20 hours of video content offered in a highly flexible format which can be done at one's own pace and time. The program has built-in assessment exercises and activities as part of the academic progression in the course. At the end of the course, there is a provision for terminal assessment which can be either online or written examination. It has been decided by the UGC that successful completion of the courses offered under the ARPIT program with 40 hours of instruction material and a proctored exam will be treated as equivalent to one Refresher Course for Career Advancement."

11. UGC, Guidelines For Human Resource Development Centre (HRDC) (2019):

"The traditional learning system failed to get the most out of what learners could do after undergoing the learning process whereas an Outcome-Based Education (OBE) system in higher education is the best way for the learner to achieve their goals.

It is envisaged that the Open Educational Resources (OER) and Massive Open Online Courses (MOOC) will become an integral part of the teaching and learning processes within the next 15 years, and the transfer and recognition, as well as micro-credentialing of OER/MOOC-based results, should become an important issue.

There is a need for a tiered structure for dovetailing the efforts of in-service teacher training & development by recognizing and specifying the role of IUCTE, CEC, INFLIBNET and HRDCs synergistically.

The Ministry of Human Resource Development has launched the Annual Refresher Programme In Teaching (ARPIT), a major and unique initiative of online professional development using the MOOCs platform SWAYAM.

HRDC will develop video lectures along with learning resources and upload them to a common portal provided by UGC.

OERs/ MOOCs and Outcome-based Education in all the Orientation and Refresher courses have been included."

12. MHRD, National Education Policy 2020:

"With the emergence of digital technologies and the emerging importance of leveraging technology for teaching-learning at all levels from school to higher education, The National Education Policy 2020 recommends the following key initiatives:

(a) Pilot studies for online education: Through appropriate agencies, such as the NETF, CIET, NIOS, IGNOU, IITs, NITs, etc.

(b) Digital infrastructure: This will ensure that the technology-based solutions do not become outdated with the rapid advances in technology.

(c) Online teaching platform and tools: Appropriate existing E-learning platforms such as SWAYAM and DIKSHA, will be extended to provide teachers with a structured, user-friendly, rich set of assistive tools for monitoring the progress of learners.

(d) Content creation, digital repository, and dissemination: A digital repository of content including the creation of coursework, Learning Games & Simulations, Augmented Reality, and Virtual Reality will be developed along with a reliable backup mechanism for disseminating e-content to students.

(e) Addressing the digital divide: The existing mass media, such as television, radio, and community radio will be extensively used for telecast and broadcasts as the digital content need to reach the teachers and students in their medium of instruction as far as possible.

(f) Virtual Labs: Existing E-learning platforms such as DIKSHA, SWAYAM and SWAYAMPRABHA will also be leveraged for creating virtual labs so that all students have equal access to quality practical and hands-on experiment-based learning experiences.

(g) Training and incentives for teachers: To become high-quality online content creators themselves using online teaching platforms and tools.

(h) Online assessment and examinations:

(i) Blended models of learning: the importance of face-to-face in-person learning is fully recognized so different effective models of blended learning will be identified for appropriate replication for different subjects.

(j) Laying down standards: As research on online/digital education emerges, NETF and other appropriate bodies shall set up standards of content, technology, and pedagogy for online/digital teaching-learning. These standards will help to formulate guidelines for E-learning by States, Boards, schools and school complexes, HEIs, etc."

1.5 E-learning during COVID-19 Pandemic

The requirement of ICT is increasing in higher education because it creates numerous chances and brings out challenges for an institution working from anywhere in the world. In recent years, Several initiatives have been started by the Indian government to encourage the usage of Information and communication technologies (ICT) at every level of education recently, and higher education is no exception. "It aims to bring transparency, equal access, and a learner-friendly system of education. The MHRD and the UGC have taken up many initiatives in employing technologies in the campuses, e.g. online admission, National Academic Depository, Wi-Fi Campuses, National Digital Library, Smart Campus, MOOC based education, online education, telecast of educational program on SWAYAM Prabha, Online ARPIT program for faculty development, etc. so that real benefits reach to the students or participants at the grass-root level."

The pandemic of COVID-19 forced the Indian government to deploy several constraints, to save the campuses safe. Educational institutions called for the evacuation of hostels in March 2020 and as soon as the students reached home, the Ministry of Human resources Development attempted 'Let Covid-19 not stop your learning' and asked the universities to combat COVID-19 by continuing with SWAYAM courses and making available resources to the students.

There is evidence of the adverse impact of the COVID-19 pandemic on higher education but E-learning has significantly contributed to minimizing the loss caused due to COVID in absence of face-to-face education. The new situation has also exposed the positive and negative aspects of both systems. There are no chances of moving to face-to-face mode solely in the future. Various studies have discussed the role E-learning played during the pandemics and also the part libraries play to support E-learning.

Alqahtani & Rajkhan (2020) consider E-learning to be a critical success factor during the pandemic of COVID-19. The authors consider that E-learning is becoming a necessity and its importance has increased in education, and advocate that the institutions involved should understand the changes required on the part of faculty and learners toward the E-learning system.

Chakraborty, et al (2020) considers that online education has become the mainstream of education during COVID-19. Students have also accepted this method of teaching and learning, but they emphasize the need for change in the method of teaching and assessment.

Accordingly, the role of libraries in E-learning as a measure to deal with the situation that emerged from the pandemic is to come forward and support E-learning in different ways. **Deol & Brar (2021)** analyzed the role played at the time of COVID-19 by libraries and the negative consequences of the pandemic that affected the entire globe, miserably. Libraries have the potential to cater the necessary online resources to help the teachers in preparation of teaching content and the students by offering reach to the different online materials, engaging library staff in support of research activities, and can play a vital role in spreading awareness among communities for taking preventive measures, to combat with the ill effects of the COVID-19. **Zhou (2021)** finds that ICT and online libraries are likely to play an important role in providing creative spaces for distance learning to the students during the COVID-19 period. The author shares experiences of China and Italy, and also emphasizes that the COVID-19 pandemic has unveiled the need for digital transformation for libraries to overcome all other issues and problems in the sector.

Willenborg & Withorn (2021) mentioned that the COVID-19 has forced the whole world to move into the online world and accordingly libraries towards the Online Learning Librarianship. Authors suggest that the role of librarians has changed from traditional to more proactive, with multiple jobs, leadership, instructor and online expert. **Dadhe & Dubey (2020)** consider that online learning has emerged as an important option to deal with the situation that emerged due to the Corona virus pandemic. Accordingly, libraries are to explore the ways and means to support remote learning.

1.6 E-learning in National Education Policy (NEP) – 2020

The NEP 2020 had been initiated by our Prime Minister for the citizens of our country in the mid of 2020. It was intended to induce modification in the education system of India, through various measures and to offer new opportunities to the learners in the form of flexibility with regards to entry and exit, wider choices of the courses, choosing of courses from the best institutions, seamless learning environment, and so on. It has a wider focus on the use of new technologies to ramp up digital learning in the country. It may act as a catalyst for the "Digital India Campaign" by helping to transform the whole country into a digitally equipped, knowledge-based society. Educational techniques in the form of E-learning/digital learning are likely to illustrate a vital part in the advancement of teaching-learning activities and their sequel as represented by the following diagram:

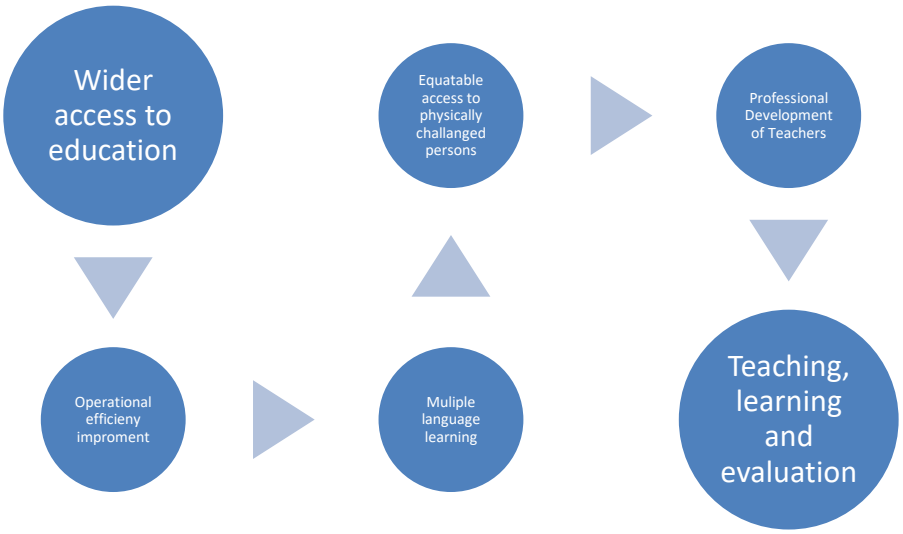

Figure 1.1 Improvement of Teaching Learning process and outcomes

The recent Union Budget of 2022 makes an announcement of the digital university aiming at providing quality education to plenty of students all over the country and is a step forward in the implementation of the National Education Policy 2022. It may offer a personalized learning experience to the remote learners through the involvement of academia-industry collaboration for skilling the youths and for the life-long learners for employment and reemployment through sustained efforts. As Finance Minister made a further announcement in her budget speech that:

"A Digital Ecosystem for Skilling and Livelihood-the DESH-Stack e-portal will be launched. This portal aims to empower citizens to skill, reskill or upskill through online training"

The points mentioned above indicate a firm determination of the Government to bring out chances of E-learning in the country for its citizens, to improve their skills through elite educational resource access as well as delivery.

1.7 E-learning Practices in India

The growth rate of E-learning differs for every country as per the ease of acceptance of E-learning by the people of that country. It is an important gauge to display the chances of collection of revenue. "The growth rate of self-paced E-learning in different countries is" (Pande et al, 2016):

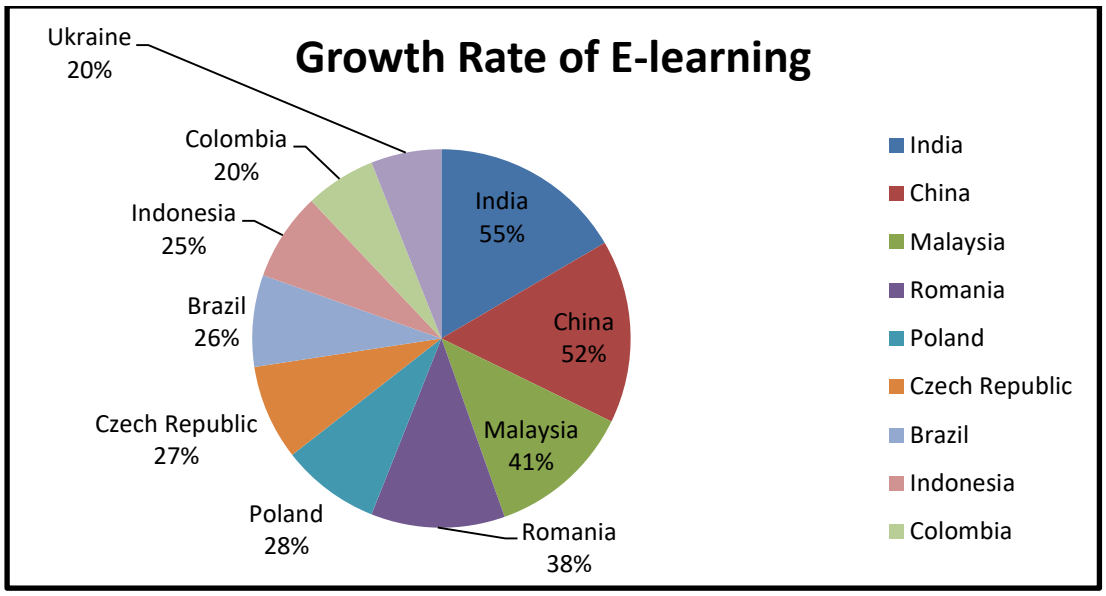

Figure 1.2 Growth Rate of E-learning

According to an estimate on firstsiteguide.com, the growth rate of the demand for E-learning had touched the 400% mark in 2020, and the future expectation is considered the same in coming years.

"India's demographic trends project that it will soon overtake China as the world's largest population with an average GDP annual growth of 8% over the last decade. The middle class demanding higher education will expand to over 500 million people in the next ten years. India's higher education system, originally designed to serve the elite, will now have to serve the common people. Innovation and changes

are required and adequate understanding of these changes will be essential" (British Council, 2014).

Since India is vast merchandise for the expansion of E-learning, it provides ample scope for E-learning in India. The important E-learning initiatives that have been taken so far in the country include:

Table 1.3 Important E-learning initiatives in India

e-GyanKosh	(http://egyankosh.ac.in)	"eGyankosh is a national digital repository to store, index, preserve, distribute & share digital learning resources developed by the Open and Distance Learning Institutions in the country. It is implemented and maintained by Indira Gandhi National Open University (IGNOU). All course materials of IGNOU can now be accessed & downloaded free of cost."
"FlexiLearn"	(http://www.ignouflexilearn.ac.in)	"IGNOU has introduced an open course portal called FlexiLearn." "It provides a self-learning environment with a list of academic advisors/course guides to act as mentors. FlexiLearn provides free and easy access to IGNOU's courses without any charges."
"National Programme on Technology Enhanced Learning (NPTEL)"	(www.nptel.iitm.ac.in)	"The National Programme on Technology Enhanced Learning (NPTEL) is a project funded by the Ministry of Human Resource Development (MHRD). The operational objective of NPTEL is to make high-quality learning material available to students of engineering institutions across the country" by using the new developments in ICT. "Under NMEICT, NPTEL (a group of 7 IITs and IISc) developed e-content in 23 Disciplines numbering 933 Courses. CEC has so far completed the development of e-content in 29 Undergraduate subjects and shall

		further be completing e-content in 58 Subjects in four quadrants."
"Consortium for Educational Communication (CEC)"	(www.cec-ugc.org)	"The Consortium for Educational Communication (CEC) was set up as a nodal agency at the national level to address the educational needs of the country through the use of electronic media. CEC has about more than 15000 educational video programs in 50 subjects developed by different Educational Multimedia Research Centres spread in Universities and Institutions of Higher Education across India. 22 Media Centres are working towards achieving this goal under the umbrella of CEC. NME-ICT, MHRD awarded the project named "Development of Courseware e-Content for Undergraduate'. E-learning Type Audio/Visual and Web-Based material. CEC project concentrates on the creation and dissemination of multimedia-based Learning resources."
"Virtual Learning Environment, Institute of Lifelong Learning (ILLL)"	(www.vle.du.ac.in)	"The Virtual Learning Environment, Institute of Lifelong Learning (ILLL) is a unique and innovative initiative of the University of Delhi to provide Open Educational Resources (OER) to the teaching and learning community. VLE provides the courses in Commerce, Humanities and Social Sciences, History, Sciences, Interviews and Podcast."

"Creation of e-Contents of Fermentation Technology"	(http://www.elearnmicrobiology.com)	"e-Content of Fermentation Technology is a dedicated project for the students of microbiology specifically in the area of industrial microbiology. The illustrations related to a dynamic textbook, lesson plans, self-assessment quiz, and interactive demonstrations given in the content have been developed by a core team of the subject experts."
"e-PGPathshala"	(http://www.inflibnet.ac.in/epgp)	"The MHRD, under its National Mission on Education through ICT (NME-ICT), has assigned work to the UGC for the development of e-content in 77 subjects at the postgraduate level. The content and its quality is the key component of the education system. High quality, curriculum-based, interactive content in different subjects across all disciplines of social sciences, arts, fine arts & humanities, natural & mathematical sciences, linguistics and languages is being developed under this initiative named e-PG Pathshala. E-content so developed would be available in open access through a Learning Management System (LMS) set-up at the INFLIBNET Centre as well as through the Sakshat portal."

Besides the above, an initiative has been taken to develop a primordial learning platform to anchor MOOCs (Massive Open Online Courses) in the Indian format. This platform has been called SWAYAM ("Study Web of Active Learning by Young and Aspiring Minds"). The e-materials available in the e-PG Pathshala program would be reprocessed and transformed into the MOOCs courses. These developments are the clear-cut indications of advancements in E-learning.

1.8 E-learning in Library and Information Science Sector

E-learning in Library and Information Science is available in many countries and a study by Lihitkar and Naidu (2015) figures important institutions offering library and information programs through E-learning.

Table 1.4 Important institutions offering E-learning in LIS

S. No.	Name of the universities/institution	Website of university/institution
1	ACRL	www.ala.org/acrl/onlinelearning
2	Click University(SLA)	www.sla.org/learn
3	YALSA	www.ala.org/yalsa/onlinelearning
4	AASL	www.ala.org/aasl
5	RUSA	www.lal.org/rusa
6	PLA	www.ala.org/pla
7	iMARK	www.imarkgroup.org
8	University of North Texas (LEAD)	www.northtexaslead.org
9	University of Washington	www.ischool.uw.edu
10	NELINET	www.lyrasis.org
11	University of Pittsburgh	www.ischool.pitt.edu/online-mlis
12	Mansfield University	www.mansfield.edu
13	Syracuse University	www.istwb.syr.edu
14	Texas Woman's University	www.twu.edu/slis
15	University of Arizona	www.sir.arizona.edu
16	The University of Illinois	www.illinois.edu
17	University of Tennessee	www.sis.utk.edu
18	University of Wisconsin	www.uwm.edu
19	IGNOU	www.ignou.ac.in
20	Florida State University	www.slis.fsu.ed
21	University of Buffalo	www.gse.buffalo.edu
22	Curtin University	www.curtin.edu
23	Drexel University	www.cis.drexel.edu

1.9 E-learning Initiatives in Library and Information Science Sector in India

In India as well E-learning initiatives have been taken by different institutions/ universities. The researcher mentions the following institutions found in the literature.

Table 1.5 E-learning Initiatives in LIS in India

S.no			
1	Vidyasagar University (Vidya Online)	www.vidyasagar.ac.in/	It is a "virtual learning system (named as VidyaOnline) for online teaching-learning of Library and Information Science courseware along with a digitally interactive student management subsystem. (online registration, online assignment submission, online MCQ test & result, online survey, chat, wiki, glossary, forum, exercise, lesson, workshop, etc".)
2	e-PG Pathshala	www.epgp.inflibnet.ac.in/	India's largest E-learning education program, started by NME-ICT under MHRD. Total 334 content of LIS –PG programs are available on it.
3	Librarians Digital Library (LDL)	http://drtc.isibang.ac.in/DRTC/	"Librarians Digital Library (LDL) developed by the DRTC (Documentation Training and Research Centre, Bangalore) provides digital resources to those interested in E-learning." "It contains the full text of papers/articles related to Indian Librarianship. Presently it contains full-text papers submitted in DRTC seminars, papers submitted by LIS professionals, and Student Thesis/Dissertations. In the future, it is having plans to include conference proceedings of Indian LIS associations."
4	Lislearn: An E-learning	www.lislearning.in/	"Lislearn is an E-learning portal specifically designed for Library

	portal		and Information Science professionals and students. It is an initiative to bring together all the Library and Information Science professional community on one single platform so that they can share their expertise and views."
5	Vidyanidhi	www.**vidyanidhi**.**org**/	"The project is based at the Dept of Library and Information Science, Mysore University, Mysore, Karnataka." "Vidyanidhi: Digital Library and E-Scholarship Portal that is planning to develop a repository for Indian doctoral thesis."
6	Vardhman Mahaveer Open University (e-Acharya)	www.learn.vmou.ac.in/	"Certificate Programme in Digital Libraries. This is the first OER-based program of the University. It is a six-month program on Digital Libraries introduced in January 2014. The program is unique in many ways: It has a practical component in the form of practical training which will be conducted by CSIR-NISCAIR at Kota, Jaipur and Delhi."
7	IGNOU online virtual class (virtual education in social science)	www.egyankosh.ac.in	"MLIS program is now available online on the LIVE platform. LIVE (Library and Information Virtual Education) is an initiative of IGNOU to develop in-house Learning & Content Management System for imparting online education. It is a complete virtual learning environment suite covering all the activities from registration to certification."

Apart from these institutions, the researcher has also come across other E-learning initiatives in the country which include: the Certificate Programme on Digital Libraries (CPDL) of Vardhman Mahaveer Open University, E-learning facilities for the public librarians undergoing training at the INFLIBNET, 'Six months Online Certificate Course in School Librarianship (CCSL) at Regional Institute of Education (RIE), NCERT, Mysore', etc. There is also a mention of an Online Certificate Course on Librarian's Competence, Tech & Skills at the link. There were several other institutions/libraries the researcher came across and identified the institutions and universities offering Library and Information Science training/ education through E-learning and also the universities / institutional libraries supporting users of E-learning.

1.10 Significance of the Study

Information and communication technologies have a valuable potential to upgrade higher education in the country. Many factors hinder the effective deployment of E-learning in the LIS sector in India, which includes: psychological fear, lack of technological awareness, faster changes in the technology, lack of optimum utilization, etc. No doubt the Government of India is initiating E-learning in the country comprehensively and LIS schools, libraries and librarians may not escape the development. But while looking at the earlier efforts it is observed that the government projects have not been taken up to the full potential and their data, and experience have not been taken up to make a holistic system of E-learning. The success of NPTEL and other such programs in the country offers a scope of E-learning in the country. The recent initiatives of the government and the UGC to bring out ePGpathashala and use this content for developing MOOCs give a big hope to the elite education scenario in India. The new challenges present new opportunities. Refining and honing the teaching methodologies and making them capable to meet future needs will define the competency of institutions to effectively embrace technology as an integral support structure for teachers and students alike. The importance of education and training through E-learning in LIS is quite clear from the literature. This study is a trial to expose various areas in the field of E-learning in the LIS sector, analyze the delivery tools of education and manage the modern e-libraries. The outcome of this research can prove to be a milestone in empowering both LIS educators and the Library and Information Science professionals so that they can

manage E-learning in libraries and library education. It is anticipated that this study would be an attempt to fill the gaps by looking at the condition of E-learning in LIS training and education in India.

1.11 Research Objectives

1. To understand the potential of E-learning in the library and information sector.
2. To find out about E-learning practices followed in the library and information sector in India.
3. To study various aspects of E-learning such as software, content, delivery, evaluation, etc. of the institutions offering E-learning in the library and information sector.
4. To study barriers encountered in employing E-learning in the library and information sector in India.
5. To conclude and suggest appropriate measures for making effective E-learning in L& I sector.

1.12 Scope of the Study

With the developments taking place in higher education, E-learning is likely to be the key area and the library and information sector is certainly an area that may perform its role in diverse ways. However, the present study is confined to :

- Employing E-learning in training and/or education of the LIS professionals.
- University libraries together with other libraries of higher educational institutions, employ E-learning to support E-learning programs as well as to impart training or for any other purpose.

1.13 Research Methodology

The researcher employed following ways to make the work step forward:

Consulting primary and secondary sources: The researcher consulted background material such as relevant books, journals, conference proceedings, online web resources and other reference material to review the relevant literature.

Studying the E-learning portals/websites: The researcher studied E-learning facility provided by various departments and by the university/ institutional libraries to

educate/ support learners. Survey discussions with prominent authors, practitioners, researchers and teachers from the field of E-learning in LIS were carried out. A schedule was made for studying the features of both kinds of E-learning facilities.

Responses from learners: Research data was collected through a questionnaire prepared for learners and also for library and information professionals. These online instruments were designed and sent to randomly selected respondents to know their opinion about the experience of E-learning. Purposive sampling was adopted.

Data Analysis: The data was collected from responses obtained to the questionnaire as well as from the sources both primary and secondary, analyzed and was then unveiled as tables, diagrams and charts as well.

1.14 Chapter Layout of the Study

The study is divided into following chapters:

Chapter-1: Introduction

Chapter-2: Review of Literature

Chapter-3: Research Methodology

Chapter-4: Profile of E-learning in LIS in India

Chapter-5: Data Analysis and Interpretation

Chapter-6: Findings, Conclusion and Suggestions

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Chapter– 2

REVIEW OF LITERATURE

2.0 Introduction

Learning is a continuous process for any kind of development may it be of an individual or an institution or society. That is why the concept of learning for life, learning organizations and learning society seems to be a reality in the present time. It supports progress in the present knowledge, increases the efficiency of taking decisions, and ICT enhances the capabilities of learning. Continuous learning is considered the key to an upward movement for everyone. ICT has also brought about change in the way people think, understand and perform their work for gaining knowledge. E-learning has a significant role in attaining learning opportunities, possibilities and capabilities in the present time. In the previous chapter, it has been discussed and made clear that E-learning is gaining momentum in higher education across all the countries and diverse subjects. The Pandemic caused due to COVID-19 has significantly offered opportunities to see the exposition of E-learning in all sectors and all countries. The situation has emerged when there are minimal chances of going back to only face-to-face teaching as the benefits of E-learning and its scope is imminent even in classroom kind of situations.

The present chapter makes a review study of E-learning initiatives in the library and information sector. The researcher tried to collect literature from various sources. Various key term strings like ‘E-learning’, ‘online learning’, ‘web-based learning’, and so on were used to identify literature from LISTA and further efforts were made to identify the useful literature from the search results. Thereafter full-text papers were collected. Full-text literature was also collected from Google Scholar, DOAJ, e-prints, conference proceedings, and subject-specific peer-reviewed journals related to E-learning in general and also in the context of Library and Information Science and services.

The collected literature has been reviewed under the following headings:

2.1 Categorization of Relevant Studies

This review chapter is broadly classified based on various relevant themes, to make a clear cut picture of the developments that have taken place so far at the international level and also national levels in India. The themes include:

- Concept, Importance and Application of E-learning
- Overview of E-learning Initiatives
- Tools and Technologies Used in E-learning Process
- Content Delivery and Modes in E-learning
- OERs in LIS Education
- MOOCs in LIS Education
- E-learning Policies in India
- Challenges and Opportunities of E-learning in LIS

2.1.1 Concept, Importance and Applications of E-learning

Kawatra and Singh (2006) traced the history of LIS education "through open and distance learning in India, which was started in 1985 by Andhra Pradesh Open University (now B R Ambedkar Open University) starting the Bachelor's degree" program in LIS followed by IGNOU which also offered the Bachelor's Programme. This article elaborated on the library services/ facilities available to the distance learners and also discussed major recommendations made in the Guidelines for Distance Learning brought out by ILA and IGNOU.

Dhiman (2010) in his paper describes the various synonymous terms used for E-learning, explains it giving the definition, meaning, and various terms and also emphasizes the need for E-learning. The author also explains the role that libraries play in education and establishes the linkage of libraries with E-learning in the form of Digital Libraries. Further, he describes ways and means to develop library services to support E-learning, the role which librarians have to play in doing this, and the benefits from such initiatives.

Sengar & Shegokar (2015) describes the definition, need, and meaning of E-learning along with its impact on skills required by the LIS professionals. It also describes the challenges to implement E-learning in the LIS sector. Various initiatives of E-learning in India and the key benefits of E-learning are also described in brief.

Kampa and Kaushik (2015) describe E-learning with the usage of LMS-Moodle in the Department of Library and Information Science, University of Rajasthan, Jaipur with the relevant features of Moodle and various roles played by it in assuming various course programs of LIS and also integrated with other E-learning platforms eg. e-PG Pathshala, etc.

Duarah (2007) brings out the application of ICT in libraries and education. She tried to convert the traditional library service into an automated, digital, electronic library service forming a library without walls. Conventional education is inclined towards changing into E-learning. The researcher describes the concept of E-learning, its purpose, distance and open learning in that context and the potential role of boundary-less libraries. The status of online education in India and the role of borderless libraries in E-learning are also discussed in the paper.

Burd & Buchanan (2004) summarize the learning theories relevant to E-learning and discuss these theories in the context of E-learning. The authors apply these theories to E-learning with a focus on the students. Authors advocate that it"requires a student-centered approach". There is a need to create a community of learners so that they develop themselves. There must be an emphasis on translating benefits from the effective use of online discussion boards and experiential learning. They feel the teacher must act as a "facilitator or guide" rather than solely as an "authority or sage".

Edward et al (2002) consider that the internet and its vast applications in education, industry and other parts of life, have significantly influenced the way teaching and learning traditionally takes place. As a result, there is increasing demand for online instruction by learners. The paper discusses "the need for a conceptual approach to researching E-learning, E-learning instructional design and the technologies employed as part of E-learning."

2.1.2 Overview of E-learning Initiatives

Anderson, B. (2005) considers view of the New Zealand government that the formation of a knowledge society is imminent to drive the economic growth, where E-learning in higher education has to play a key role to attain this target. E-learning in higher education in New Zealand having technological intervention is growing all around and is imperative for the growth engine of the economy. The approach of government was to increase the infrastructure and to provide strategic direction for the same. There have been efforts at the government level to create the E-learning environment by various means such as forming a recommendation committee and issuing funds as per a report of the committee for diverse E-learning projects.

Ham and Wenmoth (2007) discussed the evaluation of funding made available for the innovation and development of E-learning projects in New Zealand. Collaborative efforts were made to prevent wastage in the form of replication of investment and effort. It was assessed whether the efforts were sustainable and considerate for strengthening the initiatives. Efforts were made to develop the capacity, the strategic policy, the operating system and the ICT infrastructure.

Choy (2006) discusses the efforts made to consolidate "E-learning in the vocational education and training (VET) sector" in Australia. They tried to estimate the returns achieved from funding made by the government in E-learning because it is imminent to effectively use the available funds for E-learning.

Canadian Council on learning (2009) makes indication about the fact that Canada is lagging in the absence of a national policy toward E-learning, as compared to other countries that have it in their countries. The Canadian government as well as different provinces have made several initiatives and attempts for E-learning, eminent of which are CANARIE and CLOE. But loose connectivity in the efforts between territorial, provincial and federal networks of E-learning, and the E-learning educators always remained an issue. However, efforts made to provide funds for reach to the internet and capacity building for teachers were acknowledged. It was felt that there is a dearth of data available on E-learning which offers a gloomy picture of the efforts made toward E-learning in Canada.

Visced (2012) considers that there was incorrect launching of major government-funded E-learning projects in Canada to some extent eg. the TeleLearning research program had to be discontinued due to lesser student number

and the overreach of technology. But soon other projects were initiated for catering to the need for funding the institutes to develop the E-learning material, for the training of faculty, and for supporting the smaller institutions eg. CANARIE. The need for a single portal of E-learning for students regarding the online programs was also felt by the author. The situation of infrastructure remains unclear, as researcher reveals the absence of funding for this in recent years.

Finlayson et al (2006) find that the "Department for Education and Skills (DfES)" in the UK showed consideration for E-learning, developing infrastructure for E-learning, content development and training, and also the developmental initiatives. These initiatives were covered in the "National Learning Network (NLN) and other Education Resources for Learning." Authors mention that studies hold earlier indicated the involvement of E-learning in the curriculum by only 11% of the sector concerned. In the current situation, priorities include the structural organization for E-learning, faculty training and development, infrastructure development, and the expected role of teachers.

Minocha (2009) described social software covering a large count of web-based tools. The prime trait of these is to create information that can be shared. The study made use of the "case study method and gathered data from 26 initiatives in the UK. Staff and students were the main respondents to find out what they had done, how well it had worked, and what they had learned from their experiences." The study suggests that social software tools are necessary for supporting different learning methods. There is a need to focus on sharing resources, learning based on inquiry/ problem, peer-to-peer as well as collaborative learning for the consolidation of the progress of the work being undertaken.

Simpson (2005) discusses the e-University venture of the UK which fell initially as it could not attract students, while Learn Direct offered more than 400 courses with over a million enrolments during the period of the study. Even this initiative also had limited engagement of learners, resulting in a lower rate of completion. It always remains important that for facilitating wider usage of the internet offline learner support centers must be established and loaded with access to network services in the library.

Allen & Seaman (2010) seek responses from all the institutions providing degrees and were within reach of the general public, maybe private or public institutions. Although the number of student enrolment was continuously on the rise in these institutions of USA. The authors concluded that the private institutions are far behind regarding the acceptance as well as the implementation of E-learning by the institutions. However, they view E-learning as being an important way of delivering education to the masses.

Otubelu (2011) discusses the role of the National Open University of Nigeria (NOUN), which is offering open and distance learning at the higher education level. The university has the largest number of learners in the country in a variety of programs of different levels. The author considers that E-learning changes the teaching-learning approach where peer learning is emphasized with a focus on collaborative learning. Accordingly, E-learning has brought about a transformation in pedagogy. The Virtual Library of the University maintains consortia of Open University libraries to provide access to varied resources for the learners. The author finds that library and information center has a major role to support and promote E-learning in Nigeria.

Bacsich et al (2009) studied the initiatives in E-learning all around the globe and found that government-run institutions are inclined more toward E-learning than others. The authors did not find consortia of resources/systems for E-learning in New Zealand. In the US, there were many consortia supporting E-learning, there was evidence of E-learning taking place with collaborative efforts in Canada and like the UK, Australia has an Open University with a consortium of several universities. Australia also has a Flexible Learning Framework for vocational and technical education.

Joshi, Pushpanadham & Khirwadkar (2002) in their research bring out a perspective of E-learning in the Asia-Pacific region. They advocate that ICT needs to be integrated into the Indian higher education system for both academic as well as administrative purposes. However, they consider that the integration of ICT into higher education is a difficult task, which requires big investments in software, hardware, training, and content development. To meet this challenge, the public-private partnership mode is needed. Accordingly, higher education institutions need to collaborate with business organizations such as Infosys, Microsoft, Aptech and NIIT.

Sarma and Majumder (2010) consider that Open Courseware is a new and emerging area in open and distance learning in India. The courses developed in various open courseware initiatives are proving to be a boon for the learners who are not having quality faculties and resources for their learning. The Courseware available in the portal/projects like e-Gyankosh of IGNOU, Learning Object Repository of CEC, e-Gurukul on Digital Libraries of Indo-German joint initiatives, NPTEL of IITs, Online Textbooks of NCERT, E-learning Portal of UNESCOSALIS, etc. is significantly contributing for their development. The initiatives towards open courseware in India that might be of need and help for the e-learners have been shown in this paper.

Pallavi, Kumar and Thakur (2013) explore the E-learning initiatives that have taken place in India. They further describe the E-learning concept, components of E-learning, E-learning content creation for courses, conceptions, and misconceptions, together with the progress of ICT and E-learning in India. Various E-learning initiatives/projects in India have also been described eg. NPTEL, E-Gyankosh, E-PGPathshala, Flexilearn, etc.

2.1.3 Tools and Technologies Used in E-learning Process

Chandwani et al (2010) describe E-learning to be the extended form of face-to-face classroom teaching. The paper highlights concepts, initiatives, and tools undertaken by many libraries and institutes around the world and also in India.

Bhatli (2014) discusses the initiatives taken at the HMS Central Library of the Jamia Hamdard (Hamdard) university about E-learning. The library uses LIBSYS 4 software, is a member of DELNET since 2004, and provides the following services about E-learning – Bibliographic index, Referral Service, Reference Service, A/V services, Reprography, etc.

Kumar (2013) describes learning management software(LMS) and the American Library Association (ALA) along with the online learning portal of ALA that has been formed on the Moodle LMS.

Abubakar and Hassan (2013) discuss the use of ICT in teaching-learning which has emerged in the form of E-learning. The concept and desperate want for the development of a curriculum for E-learning have been discussed and addressed for LIS schools in the Muslim world. Offer strategies to develop a curriculum of E-

learning suitable for the LIS schools in the Muslim world and discuss the challenges that hinder the plan for development of the curriculum as well as offer potential solutions to those challenges.

Saraswat (2014) discusses the learning management system (LMS) for E-learning execution at an institution and tried to find out the best LMS. The LMS supports interactive learning wherein the learning content is made available online and offers ample opportunities for peer learning, engagement and feedback from the learners about their learning activities. Moodle is an open-source online learning management system that can be adapted and customized according to the requirements of the institution, teachers and learners and was declared the most worthy by the author.

Subramanian, Zainuddin & Alatawi (2014) considers that ICT-supported learning tools usually offer flexible, interactive learning environments and a learner-centered education system. E-learning courses are offered using LMS such as Blackboard or Moodle, both of which are compared here under three criteria of communication, productivity and involvement of the students. The technology used to support an online course affects the pace and time in which students and faculty interact and teaching-learning transact using content supported by peer learning, continuous assessment and automatic feedback mechanism. How students perceive the LMS in the online course is discussed. Discuss advantages of MOODLE over the Blackboard.

Goyal and Tambe (2015) indicate that ICT tools are becoming imperative in all kinds of education, but institutions and students have a long way to go in fully employing their potential. Emphasizes the need for Teachers to inform the use of these tools and encourage them to implement the tools for a larger benefit of the learners. Finds that learners can adapt themselves to the online mode in selective programs and courses. But, the challenges for ICT implementation include reluctance of the faculty to implement E-learning platforms like MOODLE. For making it happen the start should be in a blended mode so that teachers and students can see the positive side and benefits of learning supported by the platforms like MOODLE.

Kumar (2013) reveals useful information about the online learning portal of the American Library Association (ALA) which is Moodle LMS. The paper makes a

study of the Association for Library Collections & Technical Services (ALCTS) course of ALA which has 10 subcategories. It further evaluates only the Fundamentals of Acquisitions (FOA) course category offered in 2012. It (Moodle) has features like modules, quizzes, discussion forums, participants assignments, chat rooms, and grades which are interactive in nature and learner-friendly. Considers that Moodle is a helpful platform to be used for boosting the learning process for LIS professionals and offers opportunities for shaping their academic careers more effectively.

Machado & Tao (2007) compared the use and effectiveness of two major learning management systems, i.e. Blackboard and Moodle. They found that Moodle has better options for the organization of content and also offers wider options for interactivity. However, for other functional areas, the data was not supportive to reach a valid conclusion. During the study higher number of respondents found MOODLE easy to use and 75% of them preferred to use it over Blackboard.

2.1.4 Content Delivery and Modes in E-learning

Ray (2012) describes the meaning of the term Web-Based E-learning (WBeL), which has the potential to offer and deliver courses to anyone, at any time and anywhere so that learners can be benefitted at their convenience. There are several ways through which WBeL has been offered in India: EDUSAT, Netvarsity, Teaching shoppe, NTFITSD, VCI of IGNOU, EEDP of YCMOU, eC-eL and many more. The paper also briefs the advantages and disadvantages of the web-based E-learning system.

Markland (2003) described a group of faculty members who used VLEs as a tool for teaching and learning. They found out the different types of hurdles faced by the librarians and information professionals in recent times. Recommends that it is the willingness of people, in groups or as individuals to create new alliances and get hold of newer skills that would determine the success or failure of the tool employed in teaching/learning for supporting the learners.

Mukhopadhyay (2006) considers that the E-learning nomenclature is not only applicable to open and distance education, but is also used for face-to-face education where electronic elements have been involved in the regular face-to-face teaching and learning process. The author discusses VidyaOnline which is a blueprint for a web-

based modular and interactive learning system, to form VLE in Library and Information Science education. It may act as a comprehensive platform for E-learning courses that are offered through distance education by the Directorate of Distance Education (DDE), Vidyasagar University. It will work as a web-collaborated compound E-learning system for LIS courses together with other traditional or distance learning programs of the Vidyasagar University. "It is founded on FOSS (Free and Open Source Software) using LAMP (Linux-Apache-MySQL-PHP) architecture, Moodle course management system and GD graphics library to be used to design and develop an interactive web-collaborated E-learning platform."

Islam, Chowdhury & Islam (2009) trace that "E-learning was first introduced in Bangladesh in the 1960s and then significant progress has been made after the foundation of BOU(Bangladesh Open University) in 1992, as the only and initial university of distance learning in the country. The University offers multiple programs in both formal and non-formal streams ranging from certificate to Masters's Degree programs. It uses multiple media like print, TV, audio broadcasts, audio cassettes and also face-to-face tutorials for the delivery of its academic courses. It uses ICT facilities for offering library and information services to support distance learning programs." Authors identify Poor ICT infrastructure, deficient funding and compromised training as well as skills as the main obstacle in developing the library services. Suggests updation of the syllabus, use of modern ICT supported teaching and learning, issuance of policy guidelines, accreditation and inclination towards using learning management systems.

Oda, Nakajima & Setoguchi (2009) made a study on the necessities required for Distance Education Programmes for Library and Information Studies (DEPLIS) in Japan. The paper discusses the requirement for distance programs in LIS education in Japan. It is needed because of widespread regional gaps, and requirements at the university level, reflecting the new form and method of education and training. The authors recommend starting E-learning programs for LIS education in Japan either as a sole method or in a blended mode. Recommend the framework of making guidelines for E-learning programs in LIS education in Japan.

2.1.5 Open Educational Resources (OER)

COL (2012) used a questionnaire for the Commonwealth governments, which was forwarded by UNESCO to all of its member states. 82 responses were collected and the response received from New Zealand, Australia and Canada was reviewed in the document. It was found that OER initiatives used to be driven by the institution rather than the government. It was also found that OER activities are found significantly in the higher education sector.

Downes (2013) considers that openness in the content, software and knowledge are required for wider use of OER and benefit of the community at large. He advocates that if there is a restriction to the access of software then it may not be considered an open for use as per the requirements of users. He offers various business models like the endowment model, membership model and donation model for OER. Makes a reference of the OER projects at the MIT, MERLOT where the only restriction is an acknowledgement to the creator/ author leading to broader distribution. He also considers the recent exhibition of OER in a MOOC domain enhances the utility of this movement.

Groom (2013) offers a guideline on "using Open Educational Resources (OER) as teaching and learning materials which can be repurposed or reused for the benefit of learners. OER can be in any form like full courses, modules, lectures and assignments. They are available both from proprietary channels like (e.g. iTunes U) as well as from more open platforms(e.g. YouTube)." The author argues that to make OER more effective and appropriate, a licensing scheme must be used. Further identifies major OERs available in the higher education arena at the global level. Describe opportunities and challenges in developing and using the OERs.

Hylen (2005) traces the origin of the term OER and mentions that it was used first in 2002 at a conference of UNESCO as a digital matter provided openly and freely to the students, self-learners and educators for using to learn/ study or re-using it for teaching or for doing research. According to the author "OER is a collection of content, tools, and implementation resources generally covered under intellectual property licenses." He also discussed the various models of OER.

Lane (2013) considered that higher education institutions have commanded the OER movement mainly by publishing their resources covered under a specific

licensing. Such an arrangement gives chance to the teachers and faculties of these institutions to display their educational assets and the learners as well as teachers of other institutions can be equally benefitted from these OER for enhancing their learning and teaching.

2.1.6. Massive Open Online Courses(MOOCs)

Ecclestone (2013) considers that the proliferation of MOOCs will provide the librarians a chance to grasp these techniques for upgrading their occupational expertise. "There will be the potential to learn valuable new skills online at virtually no cost. If you can muster some personal initiative and an Internet connection, the opportunities are vast and will no doubt proliferate over time." The author shares her personal experience of developing herself through attending MOOCs related to the Library and Information Science.

Pujar and Bansode (2014) consider MOOC as a novel "learning opportunity for aspiring students, faculty and universities in many subject areas including Library and Information Science." Flipped classroom setup may be introduced to improve the delivery of education.

Wilson and Gruzd (2014) find that MOOCs may help to increase the enrolment of students in the courses and may fetch newer concepts in the class. "MOOCs offer a unique opportunity for the LIS field to attract a wider and more diverse student base to this ever-changing interdisciplinary field."

Borrego (2019) has a view that the MOOC development may impact pedagogies being used in traditional classroom settings. MOOC courses are affected by high dropout rates and the scarcity of a business model.

Cheng (2015) reproduces the "results of conducting a survey and a focus group interview with the students. The author discovered that MOOCs content was interesting and useful and many of the respondents were willing to take other MOOCs in the future, despite facing some language barriers. Based on the findings, this study suggested the need for establishing educational value, administering methods, ways to motivate students, and designing MOOCs by incorporating the characteristics of the LIS field" in the form of pathways to utilize MOOCs in LIS education.

Authors **Stephens (2013)**, **Stephens and Jones (2014)** and **Stephens and Jones (2015)** had their MOOC and conducted pre and post MOOC surveys to find

that choice and design of the learning platform are positively influenced by the success and learning experiences of the students. They also found that MOOCs can "contribute to a better understanding of how the not-for-credit MOOC can serve as a transformative environment for professional development." LIS professionals, as well as learners, can enact the parts of learner, connector or collaborator in an autonomous social study event.

According to **Kaushik (2015),** working librarians and LIS teachers came to know about MOOC in the past "one year through e-resources and search engines, but they had not participated in any MOOC due to the reasons of unfamiliarity with the online environment and also because they had not heard about MOOCs" earlier.

Pathak and Das (2015) consider the lack of a unified syllabus, limited refresher course, single cadre, and inhabitants to use IT, as inhibiting factors to adopt LIS MOOCs in India.

Pujar and Tadasad (2016) find massive appeal in the Indian LIS professionals for propagating their education through MOOCs, however, there is a limited acquisition of this study system in LIS schools of India. Authors hope that with the launch of SWAYAM initiatives it will be "necessary for LIS schools to start experimenting with this new medium of education."

Globally, there are many MOOCs offered in Library and Information Science sector but in research studies about the individual MOOC Platform offering LIS/ or individual LIS MOOCs the numbers are few.

Nisha and Senthil (2015) furnish the details of various important MOOCs platforms such as "The Open University, Iversity, ALISON, Open Learning, Coursera, Udacity, EdX and EduKart available for delivery of education."

Young, McLaren and Maden (2017) consider MOOC as a viable and alternative "mode of content delivery as compared to the face-to-face teaching and learning" when budgets in higher educational institutions are being reduced. Authors share the experience of developing a MOOC to deliver literature search training for health librarians.

Chang-yang (2016) introduces a MOOC related to Library Advocacy with its background, content and evaluation, and also puts forward some inspirations and references for Chinese MOOC in LIS.

Based on the case of MOOC on Academic Ethics and Academic Standards **Jia and Qiushi (2017)** studied the effect of open education in university libraries through the methods of questionnaire and experience.

Yuan (2015) discusses implementation measures with a view to University Library Literature Retrieval Course reform.

Kanjilal (2016) in her paper analyzes the SWAYAM initiative and explores the problems and challenges of its execution in India. When the Beta version of this site was started on August 15, 2016, a large number of OER-based resources/courses developed under NMEICT were available with the NPTEL, CEC, and UGC. She points out that "under the SWAYAM initiative all the contents developed under NMEICT are being repurposed and being made MOOCs compliant." The paper concludes that "mainstreaming the SWAYAM initiative with the formal education system will go a long way in realizing the dream of the nation in universal access to education. With appropriate planning and implementation, SWAYAM can play a pivotal role in the Digital India and Skill India missions of the government of India."

Agrawal and Singh (2019) hope that "LIS professionals and schools of LIS can explore possibilities and work together to assist, resolve problems and develop MOOCs in different topics including LIS-related topics and build the image of libraries to prove their significance in this digital era."

Moreover, **Panda, Mahapatra and Saibabu (2019)** consider that such initiatives can help learners "develop a bridge through the digital revolution for the students who have remained behind and those who have not been able to join the mainstream of the digital knowledge economy."

Shinde (2019) hopes that the SWAYAM Programme initiated by the Government of India will help in making quality teachers available to pupils and multi-language study material in regional languages also to get them started quickly.

Gul et al (2018) consider that "National and international accreditation councils should be put in place to check and validate the course contents. To get a wider audience, people on social platforms should be encouraged to translate the

course into different languages and to develop at least subtitles in different languages for multimedia content. Although active participation in online courses has been witnessed so far, the pass-out percentage is not much promising. The language of the contents should be simple, lucid, and easy to understand and comprehend."

2.1.7 E-learning: Policy Perspectives

E-learning in India is a growing area that has been indicated in many government and non-government reports. These reports will have policy implications over a while:

"Annual report (2013-2014) of the Department of School Education and Literacy, Department of Higher Education, Ministry of Human Resource Development, Government of India" reported that the "National Mission on Education through Information and Communication Technology (NMEICT) has been envisaged to leverage the potential of ICT, in providing high quality personalized and interactive knowledge modules over the internet/intranet for all the learners in Higher Education Institution in the any-time, anywhere mode. It also plans to focus on appropriate pedagogy for E-learning, providing the facility of performing experiments through virtual laboratories, online testing and certification, online availability of teachers to guide and mentor learners, utilization of Direct to Home (DTH) platforms, training and empowerment of teachers to effectively use the technology integrated methods of teaching, etc."

While discussing the "MOOC for Capacity Building in Indian Agriculture: Opportunities and Challenges, it is observed that– In the given diversity of Indian agriculture, the demographic profile of our population and more importantly, the scale at which it is required, the conventional methods of capacity building will be of little use. Information and Communication Technologies (ICT), which are playing an important role in bridging the digital divide, could successfully be deployed for this purpose. Online learning is a practice of linking learners, learning materials and mentors/teachers using technology mediation (especially the Web and social networking). The Massive Open Online Courses (MOOCs) are the recent disruptive innovations that can enable a small group of teachers/mentors to offer learning services to many people in the duration of a single course." **(NAAS 2014)**

Madhav Menon Committee considered that: "With the advent of technology, worldwide use of the internet has given rise to online or E-learning available with flexible timing. Digital technologies for learning with self-paced learning modules, multimedia case studies, simulations, video tutorials, communications and assessment tools, have increased the array of learning opportunities for students and their teachers. The technology integration in Self-assessment allows teachers and learners to measure their skills in desired areas and get a customized professional development plan to improve their skills. Virtual classrooms, libraries and laboratories can be created for providing learning and other support services to the distance learners. On-demand Examination provides students complete flexibility in the system of examination."

In a report on E-learning in Commonwealth Asia prepared by **COL**, it is recommended that:

- "While eLearning has been adopted in most subjects and disciplines, educational institutions need to diversify their program offerings by initiating E-learning programs in more disciplines.
- While the blended mode of E-learning is highly suitable considering the level of Internet access available in the Commonwealth Asian countries, educational institutions may also explore the possibilities of offering completely online programs.
- The number of organizations, programs, and students engaged currently in online learning is too small. There is a huge scope to increase the enrolment and offer more programs by more institutions. The market for E-learning programs in Commonwealth Asia is increasing rapidly and educational institutions should respond by offering more online programs.
- There is an increasing need for creating awareness and capacity building in the area of E-learning policy, open licensing, OER, use of technology options, etc. While many institutions have recognized the need for training of the staff, not many opportunities are available in this area, and there is a need to encourage teachers to take up continuous professional development programs in the relevant areas.

- While designing E-learning programs, it is important to ensure the usability of courses for people with disabilities.
- The development of quality parameters/ guidelines for E-learning programs needs to be given top priority.
- The parity of courses and programs delivered online must be ensured."

The report entitled ***Understanding India: The future of higher education and opportunities for international cooperation*** concludes that "huge potential exists in digital learning technologies with UK partnerships and expertise: online and blended learning, instructional design, teacher development, management and support systems." **(British Council, 2014)**

In the report ***Meeting India's Education Challenges Through E-learning***, "The UK's experience with E-learning makes it an ideal partner for India." It further mentions that:

"Its excellent academic capabilities, assessment methodologies, and a thriving technology sector make its proposition attractive. India is developing rapidly with indigenous enterprises creating international footprints and a vibrant and growing pool of innovators."

In "Synchronising the Research Policy Dialogue to the Indian Dimension EU-India joint ICT research priorities and policy Recommendations Supported by the European Commission." (http://www.synchroniser.org) considers that

"E-learning has found acceptance to a large extent in the Indian market scenario. Advancements in digital electronics have made E-learning a very amicable way of imparting education, given the fact that information can be accessed randomly, retrieved fast and manipulated with minimum storage space requirements".

In the past two years, there have been a lot of changes in Indian E-learning and online education due to the wider impact of the COVID-19 pandemic in India and abroad and also as a wider discussion on the implementation of NEP-2020 in India.

2.1.8. Challenges and Opportunities of E-learning in LIS

Lihitkar, Naidu and Lihitkar (2013) in their paper describe LIS education and E-learning, methods of E-learning for LIS education, major challenges faced by

the LIS professionals in E-learning in India, and recommendations for creating an E-learning environment in LIS education in India.

Imran (2011) in his paper – "Trends and Issues of E-learning in LIS-Education in India: A Pragmatic Perspective" describes E-learning in India regarding E-learning in LIS education. It also describes the online education scope and growth in India along with challenges to E-learning with reference to cost, time, content incompatibility, human resistance and technological barriers. The paper describes some major initiatives in India like E-Gyankosh, NODLINET, IUC-TEFED, LOR, eGurukul, Eklavya, OSCAR, etc, and future predictions about E-learning in India.

Chaudhary (2012) in his paper "Active use of the digital library for E-learning in India" describes the synergy between digital libraries and E-learning, and digital library's use for E-learning. He also describes the challenges posed to E-learners and the various E-learning initiatives in India.

Pujar & Bansode (2014) in their research found that Massive Open Online Courses (MOOCs) will provide an opportunity "in improving the LIS education and skills of library professionals. The present Internet era expects librarians to have multiple skill levels including that of ICT. Library schools in developing countries face certain challenges such as shortage of teachers, funds, skills levels, availability of resources and infrastructure. MOOCs may certainly play a pivotal role in the above areas to improve the quality of LIS education and training and may also bring opportunities."

Mathew (2013-14) in this paper describes the concept of E-learning and the role that academic libraries must play with regards to E-learning. The paper also addresses the changing role of academic libraries in the implementation of ICT with issues and challenges faced. Also describes the E-learning scenario in libraries and information centers in India and the various implications for the library profession.

Patkar (2009) in this paper describes an evolving form of the library in context to shift in the learning process from traditional learning to E-learning. He described the tools of E-learning, the evolution of libraries in form of brick and mortar libraries, digital libraries, e-mobile libraries and more. Also discussed "the impact of E-learning on the learner, teacher and library using a framework of the laws

of media enunciated by Marshall McLuhan, and in the future E-learning and new form of the library will fit well in the emerging concept of self-service society."

Ray (2012) in the paper "Web-Based E-learning in India: The Cumulative Views of Different Aspects", describes Web-Based E-learning in reference to the approaches taken or are to be taken along with instructional design models, different course development models and the merits and demerits of WBeL.

Singh (2013) in their paper described the "use of Web 2.0 services and E-learning for teaching and learning purposes among Indian LIS departments" through content from websites of Universities / LIS departments.

G. Thamaraiselvi (2009) in this paper analyzed and explored the changing vision and roles of future academic library professionals to meet the challenges and changes in the E-learning environment and documented them. It also defines and explains the concept of e-literacy and digital learning in academic institutions and discusses the various skills needed for library professionals to cater to the ongoing user's digital or online needs.

2.2 Conclusion

With the reviewing of literature, it's clear that E-learning is gaining momentum all across the world. Although the development taking place around the world also indicates that the tools being used by the institutions involved in E-learning are changing over time and also newer terminologies are emerging. The present scenario indicates that MOOCs and OERs are important means of E-learning. The recent developments in the country also indicate importance of the development of E-learning as a way forward for blended learning. The availability of MOOC courses for LIS students and also for working professionals has become a reality.

Professionals of LIS were excited about the development of MOOCs and learning through MOOCs in the LIS as well as implications on library and information centers and services. Many surveys were undertaken to understand the thrust of library professionals around the world. While reviewing other papers on MOOCs in LIS, the following scenario emerges:

(a) The SWAYAM portal was a less known MOOC portal amongst LIS professionals in 2016 **(Sawant, 2016)**

(b) The SWAYAM was launched and a category 'Library' was created and two courses namely 'Digital Library' and 'Library Automation and Digitization' started running on SWAYAM **(Nayek, 2016)**.

(c) LIS courses on SWAYAM were fewer in number than other courses in 2018 **(Nayek, 2018)**.

(d) There were 12 LIS-MOOCs (involving the MOOC on "Advertising and Public Relations" at the SWAYAM platform anchored by INFLIBNET. Awareness and interest of LIS professionals grew manifold during 2018 **{Sharma, (2018), Samanta (2018)}**.

(e) There were 25 LIS courses (it included multiple entries) offered on the SWAYAM Platform **(Bansode, 2019)**.

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Chapter-3

Research Methodology

3.0 Introduction

For conducting any research the researcher must be well equipped with a suitable research methodology, which will help the researcher to conduct the research systematically, so as to attain the research objectives. Research is a systematic process as it requires certain steps to carry out the study following a procedure, or steps through which accurate and valid conclusions can be drawn.

Kumar (2001) defines research as

"Research is a thorough exploration and meticulous probe for the latest and up-to-date information through an analytical, systematic and scientific approach which help to find out novel facts."

Opoku (2016) considers that:

"The selection of relevant **research methodology** is amongst very tiresome and bewildering decisions for most of the researchers to make."

OCED (2002) considers that research comprises:

"Innovative work taken forward on a systematized way to expand the reservoir of knowledge, including knowledge of individual man, society and culture, and the use of this collection of knowledge to formulate newer applications."

Martyn Shuttleworth (2008) :

Gives a broad definition of research which includes any collection of facts, information and data for the improvement or expansion of knowledge."

As such, various authors have defined research based on their experiences. But, in general, it can be considered that research is a way of thinking, a way of finding answers to the questions that come into the researcher's mind. But, the process to be followed in finding answers to the questions need to be empirical and subjective. The researcher follows techniques and procedures to arrive at valid and logical conclusions. As such, the research process requires a scientific approach and procedures to arrive at conclusions.

Different streams of knowledge have different methods of research and so the methodology also varies accordingly. It is very important to consider appropriate methodology as well as tools for research work so as to obtain the research goals. Research methodology demands proper work in terms of planning and careful identification of tools to gauge the research parameters.

Gorman & Clayton (2005) classified research models into three approaches as follows:-

a) Positivist or quantitative

b) Constructivist or interpretive or qualitative and

c) Mixed methods or Mixed Method Research (MMR).

Al Kilani (2016) considers that research methodology focuses on selecting the suitable strategy for assembling and analyzing the data. It can be defined similarly as a tactic to emphasize on the research problems and to find out or to arrive at optimal solutions.

The scientific research methods best suited for the Library and Information Science area usually belong to quantitative methodology, but in recent times mixed methods are in practice. Every study begins with certain objectives and the methodology to attain these objectives becomes vital.

This chapter covers the research methodology adopted for the present research work, which applied mixed research methods to study the prospects of E-learning, in form of a tool for learning as well as teaching and its use for supporting E-learning.

In view of the objectives of this study (as described below), an effort has been done to apply a significant research methodology.

1. To understand the potential of E-learning in the library and information sector.
2. To find out about E-learning practices followed in the library and information sector in India.
3. To study various aspects of E-learning such as software, content, delivery,

evaluation, etc. of the institutions offering E-learning in the library and information sector.

4. To study barriers encountered in employing E-learning in the library and information sector in India.
5. To conclude and suggest appropriate measures for making E-learning effective in L & I sector in India.

3.1 Scope of the Study

With the brisk developments taking place in higher education, E-learning has become a key area, and the Library and Information Science sector is certainly an area that may perform its role significantly in different ways. There are so many paths and links available for E-learning material development and access, in the subject of Library and Information Science sector as well which have been described in the chapter first. There are research publications, thesis, electronic books and newspapers which can be accessed online for E-learning. However, the present study will be confined to:

- Study the use of E-learning in studies as well as professional training for the LIS professionals and students.
- The study will cover University libraries and other libraries of higher educational institutions employing E-learning to impart training and for other purposes in any form.

3.2 Sources and Resources

Various kinds of sources and electronic resources are essentially required for understanding the problem and developing the theoretical background. Such an approach was adopted and sources and resources were collected from relevant books, journals, conference proceedings, online web resources and other reference materials.

The first objective of the study has been attained through the study of existing literature on the subject of study. There are three main categories of research publications, namely Primary, Secondary and Tertiary.

Primary sources incorporate articles and research papers depicting the original research.

Secondary sources study and give conclusions about those primary sources i.e. the original research, and are published.

The tertiary sources indicate the secondary and primary sources with or without an abstract but having bibliographical and other relevant details.

This approach has been adopted in the selection of the literature for review. The researcher started searching tertiary data and then went on to find the secondary and primary sources and resources which were relevant to the present work.

3.3 Studying E-learning Portals and Websites

On conducting the literature search and review of literature, it became easy to understand the various sources and e-resources available on the different portals and individual websites of the institutions offering LIS courses along with the libraries employing E-learning or supporting E-learning by providing online consoles through E-learning portals or otherwise, so that those portals and websites were studied further for attaining the second objective of the research, i.e. to find out E-learning practices followed in library and information sector in India.

The researcher also undertook an extensive study of the E-learning facility made available by various departments and University / Institutional libraries to educate / support learners. All types of institutes were taken into consideration so that the covered area represents the universal consistence of institutes all over India. The details of various existing portals that have been taken and also details of the courses in Library and Information Science, being offered by various Universities and E-learning employed in libraries are included in Chapter 4.

3.4 Aspects of E-learning in Library and Information Science Sector

In order to understand the courses being offered in Library and Information Science and also the E-learning practices followed in supporting E-learning courses, various websites were visited based on the information received in the published literature, social media, lists, etc., and the information about such courses have been organized. This helped the researcher to attain the 3rd objective of the study, i.e. to study various aspects of E-learning such as software, content, delivery, evaluation, etc. of the institutions offering E-learning in the Library and Information Science

sector. During the study, abundant useful information was received which has been organized in the respective chapters. Similarly, while studying E-learning practices in LIS schools and libraries, the availability and access to online resources, online services, resources offering online support through information literacy programs, supporting online E-learning/courses/modules, etc. are important and have been studied.

Software used: There are many software for managing E-learning activities of various academic institutions, generally known as Learning Management systems (LMS), which are used:-

1) To automate the administrative work, like enrolment, attendance, announcements, etc.
2) For delivery of content in any form and file format
3) Testing through quizzes, assignments, presentations, etc.
4) Tracking of how the learner access the portal and resources, undertakes the work assigned, etc.
5) Generating reports in different ways, etc.

Another E-learning software is also present, called the authoring software. This E-learning software has a narrow scope and is generally used for and related to the creation of content.

3.5 Data Collection

Research Method: To collect data, survey method was used and the data was gathered through Structured Questionnaires. Two Questionnaires were prepared for this purpose in accordance with the available literature. The observations made in previous studies were also incorporated. The study is descriptive as well as exploratory in nature.

Questionnaires: The data was collected through two detailed research questionnaires which are included in appendix 1 and 2.

The questionnaires were -

1) Questionnaire for Librarians / Faculties / Professionals.
2) Questionnaire for Users / Learners of the LIS sector.

The semi-structured questionnaires were designed using Google forms and were sent to the randomly selected respondents including Faculty/professionals and students/learners of the LIS sector for the study.

Background Studies used in Preparing Questionnaires

There were studies that deal with the subject of research, conducted during different space and time zones. The researcher used various research works conducted in recent years dealing with E-learning in the library and information sector. This helped the researcher to gain an understanding of the problem and design the questionnaires for the present study.

Tsekea & Chigwada (2020): "Carried out a quantitative study to expose the role of digital library services in supporting E-learning activities in the universities of Zimbabwe. For this purpose, an online survey instrument was used on survey monkey. It was distributed to 50 library professionals working both in private and public universities in Zimbabwe. Responses were received only from 34 respondents. The author believes that an online questionnaire was the most appropriate one to get data from librarians working under the COVID-19 guidelines from home."

Igere (2020): observed the Delta State University in Nigeria and remarked that the COVID-19 outbreak lead to compromised academic activities throughout the world. He conducted a case study that included 370 students of Library and Information Science. The study was composed of a structured questionnaire containing twenty-four (24) items. Responses were received online from 230 students. The study demonstrates that students faced difficulties in using the E-learning system.

Mathar, Akbar & Arifin (2020): Carried out a study at the "Department of Library Science of Universitas Islam Negeri (UIN) Alauddin Makassar" where students were being taught through the traditional teaching methods and the department was facing challenges in increasing the use of growing technologies and E-learning. The paper describes the planning and implementation of an E-learning software Claroline for the Department. Data for the study was collected from discussions with the faculty and students to plan and build E-learning in the department.

Sayekti et al (2021) studied the effect of E-learning during the COVID-19 pandemic on the quality of learning amongst LIS students in the "Universitas Islam

Negeri Sumatera Utara Medan (UINSU), Indonesia." Out of the total 497 students, responses were obtained from 83 students. "The study was conducted between March to October 2020 through a questionnaire and the data obtained was analyzed using descriptive statistical and simple linear regression techniques." The results were obtained on a Likert five-point scale and analyzed using the SPSS Version 23 software.

Perera & Suraweera (2021): Studied undergraduate students in the state university of Sri Lanka. They took a sample of 370 students from a total population of 10000 students using stratified random sampling. They considered that E-learning supports widened access to the educational materials with equity and equality of use in the university education and also offers flexibility in use, 24 hours access, adaptability as well as collaborative and interactive learning opportunities. This consideration was based on the data collected from students through a questionnaire and also from observation of the library's website.

Deka (2020): Clarifies that E-learning helps the users in learning through access to information and also found out the usefulness of E-learning as well as its growing impact on higher education in general and particularly in the Library & Information Science (LIS) education. An online questionnaire was used to get responses from 340 people, mainly the LIS professionals and LIS students using Google Docs. The survey was based both on close-ended along with open-ended questions and the data was analyzed using MS-excel software.

Content of the Questionnaires:

Both questionnaires have been described in appendix 1 and 2. The various aspects of both the questionnaires have been outlined as follows –

A) Prospects for users / students / learners -

1. Basic information including name, age, gender, email id, level of education and state.
2. Previous exposure or background knowledge of the E-learning concept.
3. About the general attitude towards E-learning in LIS.
4. From where, how and by which means do they access the E-learning facility in LIS.
5. Any challenges, difficulties or lacuna found.

6. About their Impressions and suggestions for the use of E-learning in the LIS sector.

B) Prospects for faculties / librarians -

1. Basic information including name, age, gender, email id and professional experience.
2. Background knowledge and usage of E-learning in the LIS sector.
3. Awareness of the E-learning program, OERs, creation of content, usage of LMS and social media tools, their benefits and availability.
4. About their Outlook for E-learning in LIS.
5. About their handling, operating and assessing of LIS content in E-learning and its utility and shortcomings.
6. About the financial management and future perspectives of E-learning in the LIS sector.

The population of Study: Initially the population was unknown as it was difficult to identify the persons who were involved in teaching and learning using the E-learning technologies and methods. But, after COVID-19 every teacher/librarian and learner became an e-learner so all teachers/professionals working in the LIS sector and students studying in LIS schools became the beneficiaries of E-learning.

Selection criteria for LIS faculties/ librarians:-

Respondents from the faculty and librarians were selected having one of the following:-

- Any of the faculty or professional librarian employed in or working in any university or library throughout India.
- Any resource person involved in training related to E-learning in the LIS sector from any Indian University or library.
- Persons having any project work or platform for E-learning in the LIS sector.
- Persons having any Publication on E-learning in the LIS sector in any indexed journal.
- Anyone found interested in E-learning through announcements and news in Social media / LIS groups and other such means.

Selection criteria for LIS students / users / learners :-

- Any of the student or learner or user of the LIS sector who has studied any LIS course or has taken any training through E-learning or attended any E-learning course in the LIS sector.

Sampling: The questionnaires were circulated through social media groups to teachers/working librarians and students as well. Sampling was done conveniently according to the purpose in which the researcher relied on his/her own selection or judgement in selecting/choosing the respondents from the population. It is also called convenience or purposive or subjective or judgement or selective sampling. Initially, it was decided to collect responses from 80 teachers/working librarians and 200 students. But due to more members being assessable, the frequency of respondents raised to 100 and 300 respectively.

Administering the Questionnaire

The final questionnaires were distributed among various Whatsapp and Telegram groups of Library faculties and professionals/librarians for one questionnaire and LIS students/Learners for the other. Questionnaires were distributed from Sep 2021 to Jan 2022 and the responses were collected till March 2022. The respondents were insisted to fill out the questionnaire by themselves.

The response rate was good due to personal efforts made by the researcher to track the responses. In most of the cases, the uncommon theme of the questionnaire, its briefness and directness appealed to the respondents. Only in 18% of cases, the respondents had to be contacted more than once for submitting the responses.

3.6 Data Analysis and interpretation:-

The overall data gathered from responses to the two questionnaires in both formats i.e. for teachers/library professionals and for learners has been put under analysis and then presented in the form of tables, charts, diagrams, etc.

Microsoft Office Word and Excel were used for these tasks and the analyzed forms and interpretations are depicted in chapter 5. The conclusions and suggestions arrived are described in Chapter 6.

3.7 References

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Chapter – 4

Profile of E-learning in LIS in India

4.0 Introduction

The use of network Information and Communication Technology for learning as well as teaching is commonly termed E-learning. A number of "other terms are also used to describe this mode of teaching and learning. These include online learning, virtual learning, distributed learning, network and web-based learning. Fundamentally, all these are referred to as educational processes which utilize Information and Communication Technology to mediate asynchronous as well as synchronous learning and teaching activities formally and informally." On a detailed review of literature, it is evident that these terms depict differential processes in education, which may be either due to the focus of technological applications or due to the easy build-up and access of the technologies in a particular time frame.

UNESCO has described E-learning as "The tool and the processes to access, retrieve, store, organize, manipulate, produce, present and exchange information by electronic and other automated means. These include hardware, digital cameras, phones, faxes, modems, CD and DVD players and recorders, digitized video/radio and T.V. programs database programs and multimedia programs" (LISBD Network, 2021).

Throughout the world, there have been efforts to popularise LIS education from the availability of E-learning content in the static form to the fully online programs involving various facets of teaching and learning. The chapter describes the profile of E-learning courses offered to Indian students. Libraries have offered links for making online resources available to the users however, instances of linking library resources with the E-learning courses were not found during the study.

4.1 Major E-learning Initiatives in Higher Education in India

There have been many initiatives for employing ICT in education to make digital transformation in the higher education system. Technology has come to the forefront in all kinds of operations in higher education and it is supporting to balance the demand of courses in a way, they are to be produced. The use of Technology develops

a favourable ecosystem of teaching and learning. More so ICT and digital technologies are vividly used in the management and governance of the institutions of higher education.

"In the summer of 2015, Indian Prime Minister Narendra Modi launched the "Digital India" initiative. Its goals include vastly expanding the country's broadband infrastructure to connect 250,000 villages with internet access and employing data analytics-based approaches to identify the tax evaders.2017, however, saw the government push to increase the use of the internet and technology, focused on a different field: education. Indian internet users surpassed 500 million in the spring of this year. Even more, users own a television. Throughout the year, Modi's government unrolled four different eLearning or remote education initiatives. Each seeks to uphold the three principles outlined in the Education Policy of "Digital India": access, equity, and quality."

"The previous President of India Pranab Mukherjee on the event of Guru Purnima propelled four noteworthy computerized activities to push e-instruction: Swayam, SwayamPrabha, National Academic Depository, and NDLI. These digitized activities are operational under the Union Ministry of Human Resource and Development." **(Service of Human Resource Development, 2016)**.

The key E-learning initiatives by the Government of India are included in Table no. 4.1:

Table 4.1: E-learning Initiatives of the Government of India in Higher Education

S. No.	Portals and Websites	Link	Host Institute
1.	SWAYAM	https://swayam.gov.in/	MHRD, Government of India
2.	SWAYAM PRABHA	https://www.swayamprabha.gov.in	BISAG, Gandhinagar
3.	NAD	https://nad.gov.in/	Ministry of Education, GOI
4.	NDLI	https://ndl.iitkgp.ac.in/	Indian Institute of Technology, Kharagpur

5.	E-Shodh Sindhu (eSS)	https://www.inflibnet.ac.in/ess	MHRD
6.	Virtual Labs	http://www.vlab.co.in/	(MHRD), Government of India
7.	e-Yantra	http://www.e-yantra.org	IIT Bombay
8.	A-VIEW (Talk to a Teacher program)	http://aview.in/	IIT Bombay
9.	E-acharya	http://eacharya.inflibnet.ac.in/vidya-mitra/	NME-ICT
10.	E-Kalpa	http://www.dsource.in/	IDC, IIT Bombay DoD, IIT Guwahati NID, Bengaluru
11.	FOSSEE	https://fossee.in	ICT – MHRD
12.	VIDWAN	https://vidwan.inflibnet.ac.in	INFLIBNET
13.	Spoken Tutorial	https://spoken-tutorial.org	IIT Bombay for MHRD
14.	BAADAL	https://baadal.nmeict.in/	IIT Delhi
15.	GIAN	http://www.gian.iitkgp.ac.in/	Indian Institute of Technology,Kharagpur
16.	NIRF	https://www.nirfindia.org/	MHRD
17.	IMPRINT	https://imprint-india.org/	MHRD
18.	SAKSHAT	www.sakshat.ac.in	Content Advisory Committee (CAC)
19.	ARIIA	https://www.ariia.gov.in/	MHRD
20.	KNOW YOUR COLLEGE	http://www.knowyourcollege-gov.in/	AKTU, U.P.
21.	DigiLocker	https://digilocker.gov.in/	Ministry of Electronics & IT (MeitY), GOI
22.	NPTEL	https://nptel.ac.in/	IITs and IISc (funded by the Ministry of Education (MoE), GOI)

23.	OSCAR	http://oscar.iitb.ac.in/	IIT Bombay
24.	ShodhGangotri	https://shodhgangotri.inflibnet.ac.in/	INFLIBNET Centre
25.	VLE	http://vle.du.ac.in/	University of Delhi
26.	Text Transcription of Video content	http://textofvideo.nptel.ac.in/	Ministry of Education (MoE), GOI
27.	SOS Tools	http://sos-tools.org/	-
28.	e-PG Pathshala	https://epgp.inflibnet.ac.in/index.php	MHRD

There have been many E-learning initiatives by the Government of India mainly under the mission NMEICT, the key initiatives include:

4.1.1 SWAYAM (Study Webs of Active-learning for Young Aspiring Minds)

It is a national-level initiative by the Government of India to achieve wider access and equity, aiming at offering quality education to the citizens of India. "SWAYAM is one of the world's largest MOOCs platform for hosting open online courses." It seeks to bridge the digital gap between the haves and have-nots and bring them all into the main streams of the knowledge economy. The SWAYAM platform is an indigenously designed platform to offer Massive Open Online Courses (MOOC) to be taken up by anyone, from any place, at any time. "It is a one-stop web and mobile-based interactive e-content, that offers courses of levels from 9^{th} class through to the post-graduate level." SWAYAM platform is also being used to offer courses such as orientation/refresher courses for the teachers and faculty development. The SWAYAM courses have four components, popularly known as four quadrants:

1) video lecture,
2) online readings and written language resources that can be downloaded/printed,
3) self-assessment tests through tests and quizzes, and
4) an open online web discussion forum for clearing doubts.

Figure 4.1: Screenshot of the SWAYAM Portal

Upon successful completion of the course, the learner can deposit a minimal amount of fee for the completion certificate.

There are various National Coordinators in various fields for ensuring the production of quality content and effective delivery. These include:

1. All India Council for Technical Education (AICTE) (for self-paced and international courses)
2. "National Programme on Technology Enhanced Learning (NPTEL) (for Engineering)
3. University Grants Commission (UGC) for non-technical post-graduation education
4. Consortium for Educational Communication (CEC) for under-graduate education
5. National Council of Educational Research and Training (NCERT) for school education"
6. " National Institute of Open Schooling (NIOS) for school education
7. Indira Gandhi National Open University (IGNOU) for out-of-school students

8. Indian Institute of Management, Bangalore (IIM Bangalore) for management studies
9. National Institute of Technical Teachers Training and Research (NITTTER) for Teacher Training program"

Free-of-cost courses are offered to the learners, but they have to register for the course and those who want "a SWAYAM certificate need to register for the final proctored exams that come at a fee and attend in-person at designated centers on specified dates." Each course has different eligibility and is announced on the course page at the time of announcement to the public. As per the UGC Regulations 2016, "Universities/Colleges approving credit transfers for these courses can use the marks/certificate obtained in these courses for the same." Initially, 20 percent of the total PG courses could be adopted from the SWAYAM courses which have been raised to forty percent.

4.1.1.1 MOOC Courses in Library and Information Science on SWAYAM Portal

SWAYAM courses in Library and Information Sciences started from the very initial stage of offering courses in the year 2016-17. Various level of courses has been offered in various subjects by the different Coordinators of the National level. The following are details of the courses offered in the subject of Library and Information Science:

Table 4.2: Massive Open Online Courses on LIS by UGC at SWAYAM

S. N.	Course Title	Faculty Name	Duration (Hrs. / Weeks)	Level	Tutorial	Test	Assignments	Credits	Program Duration	Enrolment last date	No of the Students Enrolled	Exam Date
1	"Information and Communication Technology for Libraries"	Usha Munshi	100 Hrs.	Postgraduate (Scheduled)	101	35	15	5	21/08/2017 to 28/12/2017	28/12/2017	704	
									13/08/2018 to 26/11/2018	11/09/2018	853	
									25/01/2019 to 05/05/2019	28/02/2019	484	23/05/2019
2	"Bibliometrics and Scientometrics"	Ravichandra I K Rao	80 Hrs.	Postgraduate (Scheduled)	51	15	10	3	21/08/2017 to 31/10/2017	31/10/2017	209	
									13/08/2018 to 26/11/2018	11/09/2018	380	
									25/01/2019 to 05/04/2019	28/02/2019	330	22/05/2019
3	"Information Storage and Retrieval"	Devika P Madalli	80 Hrs.	Postgraduate (Scheduled)	53	10	11	3	21/08/2017 to 13/11/2017	13/11/2017	332	
									13/08/2018 to 29/10/2018	11/09/2018	621	
									25/01/2019 to 12/04/2019	28/02/2019	439	22/05/2019
4	"Management of Libraries and Information Centres & Knowledge Centres"	Dinesh Gupta	100 Hrs.	Postgraduate (Scheduled)	93	31	15	5	15/11/2017 to 10/12/2017		Date changed	
									28/08/2017 to 09/12/2017	09/12/2017	533	
									13/08/2018 to 26/11/2018	11/09/2018	440	
									25/01/2019 to 05/05/2019	28/02/2019	430	22/05/2019

5	"Information Sources System and Services"	Renu Arora	101 Hrs.	Postgraduate (Scheduled)	101	35	15	5	21/08/2017 to 28/12/2017	28/12/2017	441	
									13/08/2018 to 26/11/2018	11/09/2018	310	
									25/01/2019 to 05/05/2019	28/02/2019	199	23/05/2019
6	"Knowledge Society"	KS Raghavan	100 Hrs.	Postgraduate (Scheduled)	63	16	15	3	21/08/2017 to 31/10/2017		327	
									13/08/2018 to 21/10/2018	11/09/2018	279	
									25/01/2019 to 05/05/2019	28/02/2019	437	22/05/2019
7	"Digital Library"	Dr. Jagdish Arora	100 Hrs.	Postgraduate (Scheduled)	91	30	15	5	15/11/16 to 02/03/2017	02/03/2017	676	
									20/08/2017 to 30/12/2017	30/12/2017	2107	
									13/08/2018 to 26/11/2018	11/09/2018	987	
									25/01/2019 to 10/05/2019	28/02/2019	777	22/05/2019
									03 Jan 2022 to 30 Apr 2022	28-Feb-22	961	02 Jul 2022
8	"Web Content Management"	Prof. Uma Kanjilal	12 weeks	Postgraduate	26	-	1	4	14 Sep 2020 to 14 Mar 2021	14-Oct-20	1672	15 Nov 2020
									31 Jan 2021 to 30 Apr 2021	01-Mar-21	720	15 Nov 2020
9	"Library Automation and Digitisation"	Prof. Uma Kanjilal	12 weeks	Diploma	35	24 27 (e-Quiz)	-	4	01-Jun-20	14-Oct-20	1390	
10	"Library Automation and Digitisation"	Prof. Uma Kanjilal	12 weeks	Diploma	35	24 27 (e-Quiz)	-	4	01 Feb 2022	15 Mar 2022	906	-
									01-Sep-21	30-Oct-21	742	-

11	“Digital Library”	Dr. Jagdish Arora	15 weeks	Postgraduate	-	-	-	5	13 Jan 2020 to 29 Apr 2020	08-Mar-20	1466	10 May 2020
									06 Jul 2020 to 26 Oct 2020	14-Oct-20	1815	-
									04 Jan 2021 to 26 Apr 2021	28-Feb-21	1052	-
									05 Jul 2021 to 31 Oct 2021	15-Sep-21	1221	
12	“Database and Content Organisation”	Dr. V. V. Subrahmanyam	15 weeks	Diploma	40	-	-	4	01 Sep 2021	30-Oct-21	776	-
									01 Feb 2022	15 Mar 2022	534	
13	“Digital Forensics”	Dr. Navjot Kaur Kanwal	16 weeks	Undergraduate/Postgraduate	39	-	-	4	05 Jul 2021 to 23 Oct 2021	31-Aug-21	2074	-
14	“Digital Library”	Dr. Jagdish Arora	15 weeks	Postgraduate	-	-	-	5	03 Jan 2022 to 30 Apr 2022	28-Feb-22	961	02 Jul 2022
15	“Criminalistics”	Prof. Devasish Bose	8 weeks	Undergraduate/Postgraduate	8	-	-	2	07 Feb 2022 to 03 Apr 2022		1527	
									06-07-2020 to 15 Nov 2020	30-Sep-20	2719	
16	“BLII-013: Information Sources and Library Services”	Dr. Archana Shukla	12 weeks	Diploma	-	-	-	4	01-Feb-22	15-Mar-22	344	
									01-Sep-21	30-Oct-21	324	
17	“BLII- 014: ICT in Libraries”	Professor Uma Kanjilal	8 weeks	Diploma	7	-	-	4	01-Sep-21	30-Oct-21	401	
18	“BLII-012: Document Processing and Organisation”	Dr. Jaideep Sharma	8 weeks	Postgraduate	6	2 (quiz)		4	01-Feb-22	15-Mar-22	318	

19	"BLIE-226 Management of Library and Information Centre"	Dr. Archana Shukla	12 weeks	Postgraduate	15	-	-	4	01-Feb-22	15-Mar-22	526	
20	"BLIE-227 Document Processing: Practice"	Professor Uma Kanjilal	12 weeks	Postgraduate	14	-	-	4	01-Sep-21	30-Oct-21	179	
21	"BLIE-228 Information Products and Services"	Dr. Archana Shukla and Dr. Pawan Kumar Saini	12 weeks	Postgraduate	13	-	-	4	01 Feb 2022	15-Mar-22	235	
									01-Sep-21	30-Oct-21	117	
22	"BLI-224: ICT Fundamentals"	Professor Uma Kanjilal	12 weeks	Postgraduate	16	-	-	4	01-Sep-21	30-Oct-21	1141	
									01-Feb-22	15-Mar-22	1559	
23	"BLI-225: Communication Skills"	Dr.Zuchamo Yanthan	12 weeks	Postgraduate	17	-	-	4	01-Sep-21	30-Oct-21	7715	
									01-Feb-22	15-Mar-22	3394	
24	"BLI-223: Organising and Managing Information"	Dr. Jaideep Sharma	12 weeks	Postgraduate	14	-	-	4	01-Feb-22	15-Mar-22	311	
									01-Sep-21	30 Oct 2021	292	
25	"BLI-221: Library Information and Society"	Dr. Jaideep Sharma	12 weeks	Postgraduate	14	-	-	4	01-Feb-22	15-Mar-22	613	
									01-Sep-21	30-Oct-21	661	

26	"BLI-222: Information Sources and Services"	Dr. Archana Shukla	12 weeks	Postgraduate	14	-	-	4	01-Feb-22	15-Mar-22	321	
									01-Sep-21	30-Oct-21	273	
27	"BLI- 011: Libraries: An introduction"	Dr.Archna Shukla	12 weeks	Diploma	-	-	-	4	01-Sep-21	30-Oct-21	588	
									01-Feb-22	15-Mar-22	576	
28	"Koha Library Management System"	Prof Kannan Moudgalya - PI of Spoken Tutorial Project | IIT, Bombay		Undergraduate/Postgraduate	21	-	-	2	-	-	-	
29	"Research Ethics and Plagiarism"	Dr. Gaurav Singh	8 weeks	Postgraduate	7	-	-	-	01-Feb-22	15-Mar-22		

Table 4.3: Massive Open Online Courses on LIS by IGNOU at SWAYAM

S.N.	Course Title	Faculty Name	Duration (Hours/ Weeks)	Level	Tutorial	Test	Assignments	Credits	Program Duration	Enrolment last date	No of the Students Enrolled
1	"Library Automation and Digitization" (12 weeks)	Prof. Uma Kanjilal	-	Certificate	49	0	14	0	17/07/2017 to 15/10/2017	15/10/2017	2796
									01/07/2018 to 31/12/2018	31/12/2018	2029
			12 weeks	Diploma	35	24 27 (e-Quiz)	-	4	01-Jun-20	14-Oct-20	1390
									01 Feb 2022	15 Mar 2022	906
									01-Sep-21	30-Oct-21	742
2	"Information Sources and Library Services"	Archana Shukla	100	Certificate	19	01	0	4	17/08/2017 to 17/12/2017	17/12/2017	1408
									01/07/2018 to 31/12/2018	31/12/2018	1033
									01/01/2019 to 30/04/2019	28/02/2019	385
	"BLI-222: Information		12 weeks	Postgraduate	14	-	-	4	01-Feb-22	15-Mar-22	321
									01-Sep-21	30-Oct-21	273

	Sources and Services"										
3	"Document Processing and Organisation"	Jaideep Sharma	80 Hrs.	Certificate	13	00	0	4	01/07/2018 to 31/12/2018	31/12/2018	1285
									01/01/2019 to 30/04/2019	28/02/2019	378
			8 weeks	Postgraduate	6	2 (quiz)		4	01-Feb-22	15-Mar-22	318
									01-Sep-21	30-Oct-21	414
4	"Database and Content Organization"	Dr. V. V. Subrahmanyam	100	Certificate	75	00	00	4	01/07/2018 to 31/12/2018	31/12/2018	1900
									01/01/2019 to 30/04/2019	28/02/2019	1148
			15 weeks	Diploma	40	-	-	4	01 Sep 2021	30-Oct-21	776
									01 Feb 2022	15 Mar 2022	534
5	"BLI- 011: Libraries: An introduction"	Dr.Archna Shukla	12 weeks	Diploma	-	-	-	4	01-Sep-21	30-Oct-21	588
									01-Feb-22	15-Mar-22	576
6	"BLI-221: Library Information and Society"	Dr. Jaideep Sharma	12 weeks	Postgraduate	14	-	-	4	01-Sep-21	30-Oct-21	661
									01-Feb-22	15-Mar-22	613

7	"BLI-223: Organising and Managing Information"	Dr. Jaideep Sharma	12 weeks	Postgraduate	14	-	-	4	01-Feb-22	15-Mar-22	311
									01-Sep-21	30 Oct 2021	292
8	"BLI-224: ICT Fundamentals"	Professor Uma Kanjilal	12 weeks	Postgraduate	16	-	-	4	01-Sep-21	30-Oct-21	1141
									01-Feb-22	15-Mar-22	1559
9	"BLI-225: Communication Skills (Library Information Science)"	Dr.ZuchamoYanthan	12 weeks	Postgraduate	17	-	-	4	01-Sep-21	30-Oct-21	7715
									01-Feb-22	15-Mar-22	3394
10	"BLIE-226 Management of Library and Information Centre"	Dr. Archana Shukla	12 weeks	Postgraduate	15	-	-	4	01-Feb-22	15-Mar-22	526
11	"BLIE-227 Document Processing: Practice"	Professor Uma Kanjilal	12 weeks	Postgraduate	14	-	-	4	01-Sep-21	30-Oct-21	179
12	"BLII- 014: ICT in Libraries"	Professor Uma Kanjilal	8 weeks	Diploma	7	-	-	4	01-Sep-21	30-Oct-21	401
13	"BLIE-228 Information Products and Services"	Dr. Archana Shukla and Dr. Pawan Kumar Saini	12 weeks	Postgraduate	13	-	-	4	01 Feb 2022	15-Mar-22	235
									01-Sep-21	30-Oct-21	117
14	"Research Ethics and Plagiarism"	Dr. Gaurav Singh	8 weeks	Postgraduate	7	-	-	-	01-Feb-22	15-Mar-22	Not available

Table 4.4: Upcoming Massive Open Online Courses by AICTE for FDP

S.N.	Course Title	Faculty Name	Duration (Hours)	Level	Tutorial	Test	Assignments	Credits	Program Duration	Enrolment last date	No of the Students Enrolled
1	"Koha Library Management System"	Prof Kannan Moudgalya - PI of Spoken Tutorial Project IIT, Bombay	-	Undergraduate/Postgraduate	21	-	-	2	-	-	-

Table 4.5: Massive Open Online Courses on LIS by CEC at SWAYAM

S.N.	Course Title	Faculty Name	Duration (Weeks)	Level	Tutorial/Module	Test	Assignments	Credits	Program Duration	Enrolment last date	No of the Students Enrolled	Exam Date
1	"Web Content Management"	Prof. Uma Kanjilal	12 weeks	Postgraduate	26	-	1	4	14 Sep 2020 to 14 Mar 2021	14-Oct-20	1672	15-Nov-20
									31 Jan 2021 to 30 Apr 2021	01-Mar-21	720	15 Nov 2020
2	"Digital Library"	Dr. Jagdish Arora	15 weeks	Postgraduate	-	-	-	5	13 Jan 2020 to 29 Apr 2020	08-Mar-20	1466	10 May 2020
									06 Jul 2020 to 26 Oct 2020	14-Oct-20	1815	-
									04 Jan 2021 to 26 Apr 2021	28-Feb-21	1052	-
									05 Jul 2021 to 31 Oct 2021	15-Sep-21	1221	
									03 Jan 2022 to 30 Apr 2022	28-Feb-22	961	02 Jul 2022
3	"Criminalistics"	Prof. Devasish Bose	8 weeks	Undergraduate/Postgraduate	8	-	-	2	07 Feb 2022 to 03 Apr 2022		1527	
									06-07-2020 to 15 Nov 2020	30-Sep-20	2719	
4	"Digital Forensics"	Dr. Navjot Kaur Kanwal	16 weeks	Undergraduate/Postgraduate	39	-	-	4	05 Jul 2021 to 23 Oct 2021	31-Aug-21	2074	-

Table 4.6: Massive Open Online Courses on LIS by NIOS at SWAYAM

S. N.	Course Title	Faculty Name	Duration (Hours)	Level	Tutorial	Test	Assignments	Credits	Program Duration	Enrolment last date	No of Students Enrolled
1	"Library and Information Science"	Manju Chrungu	100	Sr. Secondary	61	12	0	0	01/08/2018 to 31/01/2019	31/01/2019	622
									01/04/2019 to 30/09/2019	30/06/2019	816

Table 4.7: ARPIT Massive Open Online Courses on LIS by IGNOU at SWAYAM

S. N.	Course Title	Faculty Name	Duration (Hours)	Level	Tutorial	Test	Assignments	Credits	Program Duration	Enrolment last date	No of Students Enrolled
1	"Library and Information Science"	Prof. Uma Kanjilal	100	Sr. Secondary	26	0	0	0	15/11/2018 to 28/02/2019	31/01/2019	873

Table 4.8: SWAYAM Courses

S.No.	COURSE	FACULTY	HOURS	PARTICIPATION/ CERTIFICATE	CREDIT
1	"Document processing and organisation"	Jaideep Sharma	60	Yes	4
2	"Database and content Organisation"	V.V.Subrahmanyam	60	Yes	4
3	"Library automation and digitisation"	Uma Kanjilal	60	Yes	4
4	"Information sources and library services"	Archana Shukla	60	Yes	4
5	"Senior secondary: Library and Information Science"	Manju	240	Yes	0
6	"Information storage and retrieval"	Devika P Madalli	80	Yes	3
7	"Information and Communication Technology for libraries"	Usha Munshi	100	Yes	5
8	"Management of Libraries and information centers and knowledge centers"	Dinesh K Gupta	100	Yes	5
9	"Information sources system and services"	Renu Arora	100	Yes	5
10	"Digital library"	Jagdish Arora	100	Yes	5
11	"Knowledge Society"	Ks. Raghavan	100	Yes	3

Table 4.9: SWAYAM Courses (Current-1)

S. No.	Course Title	Faculty Name	Duration/Hours	Level	Language	Certification	Tutorial	Test	Assignments	Fee
1.	"Digital Libraries"	Jagdish Arora	15 weeks/100 hours	Postgraduate (Scheduled)	English	Yes	91	30	15	Free
2.	"Bibliometrics and Scientometrics"	Ravichandra I K Rao	10 weeks/ 80 hours	Postgraduate (Scheduled)	English	Yes	43	13	8	Free
3.	"Knowledge Society"	KS Raghav	15 weeks/100 hours	Postgraduate (Scheduled)	English	Yes	63	21	15	Free
4.	"Information and Communication Technology for Libraries"	Usha Munshi	15 weeks/100 hours	Postgraduate (Scheduled)	English	Yes	101	35	15	Free
5.	"Information Sources system and Services"	Renu Arora	15 weeks/100 hours	Postgraduate (Scheduled)	English	Yes	101	36	15	Free
6.	"Management of Libraries and Information Centers and knowledge Centers"	Dinesh Gupta	15 weeks/100 hours	Postgraduate (Scheduled)	English	Yes	93	31	15	Free
7.	"Information storage and Retrieval"	Devika P Madalli	11 weeks/80 hours	Postgraduate (Scheduled)	English	Yes	53	15	11	Free

Table 4.10: SWAYAM Courses(Current-2)

S.No.	Offered By	Course Name	Duration	Level	Content-Type	Language	Certification	Frequency	Credit Point	Faculty
1.	IGNOU	"Libraries: An introduction (BLI-011) (Core)"	12 weeks	Diploma	Text and Video	English	Yes	2	4	Dr.Archana Shukla
2.	IGNOU	"ICT in Libraries (BLII-014) (Core)"	12 weeks	Diploma	Text and Video	English	Yes	3	4	Prof. Uma Kanjilal
3.	IGNOU	"Library Information and Society (BLI-221) (Core)"	12 weeks	Postgraduate	Text and Video	English	Yes		4	Dr. Jaideep Sharma
4.	IGNOU	"Information sources and services (BLI-222) (Core)"	12 weeks	Postgraduate	Text and Video	English	Yes		4	Dr. Archana Shukla
5.	IGNOU	"Organizing and managing information (BLI-223) (Core)"	12 weeks	Postgraduate	Text and Video	English	Yes		4	Dr. Jaideep Sharma
6.	IGNOU	"ICT fundamental (BLI-224) (Core)"	12 weeks	Postgraduate	Text and Video	English	Yes		4	Prof. Uma Kanjilal
7.	IGNOU	"Communication skills (BLI-225)"	12 weeks	Postgraduate	Text and Video	English	Yes		4	Dr.ZuchamoYanthan

8.	IGNOU	"Document processing and organization (BLII-012) (Core)"	4 weeks	Postgraduate	Text and Video	English	Yes	2	4	Dr. Jaideep Sharma
9.	IGNOU	"Information sources and library services (BLII-013) (Core)"	12 weeks	Diploma	Text and Video	English	Yes	2	4	Dr. Archana Shukla
10.	IGNOU	"Database and content organization (Core)"	15 weeks	Diploma	Text and Video	English	Yes	2	4	Dr. V.V. Subramanyam
11.	CEC	"Digital library (Elective)"	15 weeks	Postgraduate	Text and Video	English	Yes	4	5	Dr. Jagdish Arora
12.	IGNOU	"Library automation and digitization (Core)"	12 weeks	Diploma	Text and Video	English	Yes	2	4	Prof. Uma Kanjilal
13.	CEC	"Web content management (Elective)"	12 weeks	Postgraduate	Text and Video	English	Yes	2	4	Prof. Uma Kanjilal

14.	CEC	"Digital Forensics (Elective)"	16 weeks	Undergraduate/ Postgraduate	Text and Video	English	Yes		4	Dr Navjot Kaur Kanwal
15.	AICTE	"Koha library management system (Elective)"	12 weeks	Undergraduate/ Postgraduate	Text and Video	English	Yes		2	Prof. Kannan Moudgalya

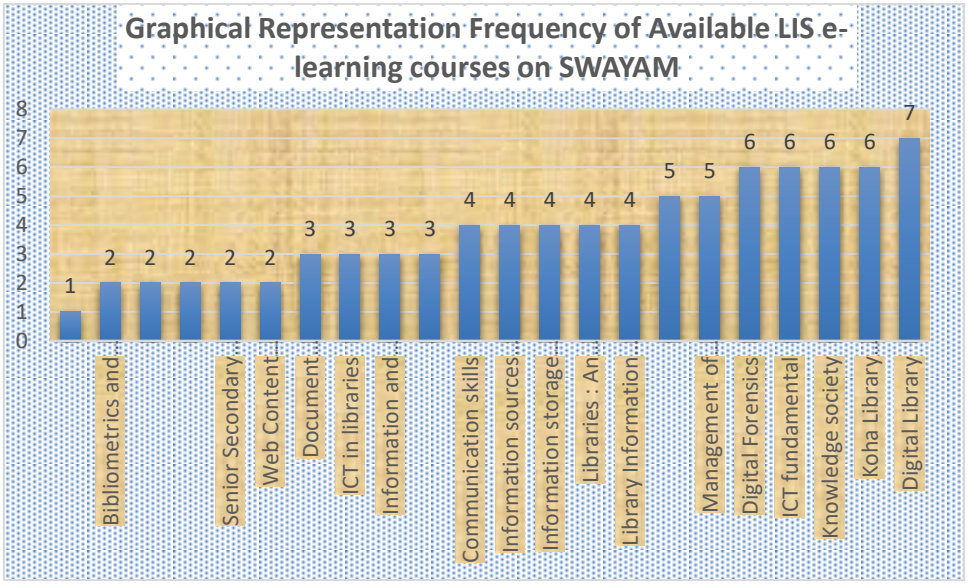

Figure 4.2: Frequency of Available LIS E-learning courses on SWAYAM

4.1.2 SWAYAM PRABHA (https://www.swayamprabha.gov.in/)

"The SWAYAM PRABHA is a cluster of thirty-two DTH channels dedicated to videos of high-quality instructional programs on a 24X7 basis. Related to the online platform, Swayam Prabha provides free lectures and lessons broadcast for television via the GSAT-15 satellite. Many millions of people in the country own televisions, but cannot access the internet regularly (or at all). The 24-7 programming will include undergraduate to post-graduate level lectures in STEAM fields and beyond. Every day, there'll be new content for a minimum of (4) hours which might be perennial five additional times during a day, permitting the scholars to settle on the time of their convenience. The channels are uplinked from BISAG, Gandhinagar. The contents are provided by NPTEL, IITs, UGC, CEC, IGNOU, NCERT and NIOS. The INFLIBNET Centre maintains the online portal."

"The service is ideal for the hundreds of millions in India who have access to the internet only at certain times of the day or week. In tandem with Swayam, students can download the reading material and self-assessments and watch the lectures from home. Online to offline education initiatives have started creating a huge impact in the world's second-biggest country in terms of population."

"The DTH Channels shall cover the following:

a) Higher Education: Curriculum-based course contents at the post-graduate and undergraduate level covering various disciplines like arts, science, commerce, humanistic discipline, social sciences and humanities, engineering, technology, law, medicine, agriculture, etc. All courses would be certification-ready in their elaborate providing through SWAYAM, the platform being developed for providing MOOCs courses.

b) College Education: Modules for teacher's coaching and as teaching and learning aids for youngsters of the Republic of India which facilitate them perceive the topics higher and additionally help to make them ready for competitive examinations for admissions to skilled degree programs.

c) Curriculum-based courses which will meet the wants of lifelong learners of India and abroad.

d) Assist students (class eleventh & 12th) prepare themselves for competitive exams by offering MOOCs courses.

e) School education (9-12 levels): modules for teacher's training as well as teaching and learning aids for children of India to help them understand the subjects better and also help them in preparing for competitive examinations for admissions to professional degree programs.

f) Curriculum-based courses that can meet the needs of life-long learners of Indian citizens in India and abroad."

Figure 4.3: Snapshot of Homepage of SWAYAM PRABHA E-learning Portal

Table 4.11: E-Content/courses on Library and Information Science subject available on SWAYAMPRABHA (Current, Channel 05)

Swayam Prabha | 34 DTH channels | India | Current | Channel 05						
S.No.	**Subject**	**Course**	**Topic**	**Faculty Name**	**User Category**	**Telecast Date**
1.	"Library and Information Science"	"Library Classification (Practice)"	"Classification of documents using Table-4 and Table-6 of Dewey Decimal Classification (19th ed.)"	Dr.H.JAbidi	UG	02-08-2021
2.	Library and Information Science	Library Classification (Practice)	"Classification of documents using Table-5 of Dewey Decimal Classification"	Dr.H.JAbidi	UG	02-08-2021
3.	Library and Information Science	"Management of Library and Information Centres"	"Library Management-Definition & Need"	Dr.P.M. Naushad Ali	UG	02-08-2021
4.	Library and Information Science	Library Classification (Practice)	"Practical Classification of Simple Documents using DDC 19th Ed."	Dr.H.J.Abidi	UG	02-08-2021
5.	Library and Information Science	"Information Sources and Services"	"Reference and information services: (SDI) Selective Dissemination of Information"	Kripa Nand Jha	UG	02-08-2021
6.	Library and Information Science	Information Sources and Services	"Reference and Information Services(CAS)	Kripa Nand Jha	UG	02-08-2021

			Current Awareness Service"			
7.	Library and Information Science	"Information Communication and Society"	"Resource Sharing and Networking"	Dr. Shantanu Ganguly	UG	02-08-2021
8.	Library and Information Science	"Information and Communication Technology (ICT in Library and Information Science (Theory)"	"Search Engines & Search Techniques"	Dr.S.K.Naqvi	UG	02-08-2021
9.	Library and Information Science	Information Sources and Services	"Secondary Sources of Information and their Life Cycle"	Kripa Nand Jha	UG	02-08-2021
10.	Library and Information Science	Library Classification (Practice)	"Universe of subjects as mapped in DDC"	Mr.S.Mustafa K. Zaidi	UG	02-08-2021
11.	Library and Information Science	Library Classification (Practice)	"Universe of subjects as mapped in CC"	Mr.S.Mustafa K. Zaidi	UG	02-08-2021
12.	Library and Information Science	Information Sources and Services	"Reference Sources-Dictionary, Encyclopedia, Biographies & Statistical Sources"	Kripa Nand Jha	UG	02-08-2021
13.	Library and Information Science	Library Classification (Practice)	"Universe of subjects as mapped in UDC"	Mr.S.Mustafa K. Zaidi	UG	02-08-2021
14.	Library and Information Science	Information and Communication Technology (ICT)in Library and Information Science (theory)	"Network Topologies Bus, Star, Mesh and Ring"	Dr.Shane Kazim Naqvi	UG	03-08-2021

15.	Library and Information Science	Library Classification(Practice)	"Classification of documents using Table 3 of Dewey Decimal Classification(19th ed.)"	Dr. Hasan Jamal Abidi	UG	03-08-2021
16.	Library and Information Science	Library Classification(Practice)	"Classification of documents using Table-1 of Dewey Decimal Classification (19th ed.)"	Dr.Hasan Jamal Abdi	UG	03-08-2021
17.	Library and Information Science	Information and Communication Technology (ICT)in Library and Information Science (theory)	"Network Devices Repeaters, hubs & Bridges"	Dr.Shane Kazim Naqvi	UG	04-08-2021
18.	Library and Information Science	Information and Communication Technology (ICT in Library and Information Science (Theory)	"Network Devices Switch, Router and Modem"	Dr.Shane Kazim Naqvi	UG	04-08-2021
19.	Library and Information Science	Management of Library and Information Centers	"Collection Development in Modern Libraries"	Dr.Nabi Hasan	UG	05-08-2021

Table 4.12: E-Content/courses on Library and Information Science subject available on SWAYAM PRABHA (Archive, Channel 05)

Swayam Prabha | 34 DTH channels | India | Channel 05 | Archive				
No.	**Subject**	**Topic**	**Language**	**User Category**
1.	"Library Science"	"Species of Library classification"	English	UG
2.	Library Science	"Trends in Library Classification"	English	UG
3.	Library Science	"Promotion of Library and Information series by international Organizations"	English	UG
4.	Library Science	"Purpose and Function of Library classification and different classification schemes"	English	UG
5.	Library Science	"Library Building Furniture and Equipment"	English	UG
6.	Library Science	"Library Housekeeping operations-technical series"	English	UG
7.	Library Science	"Library Legislation needs and purposes and Library legislation in India a comparison"	English	UG
8.	Library Science	"Library Movement in India"	English	UG
9.	Library Science	"Library Movement in Kerala"	English	UG
10.	Library Science	"Five Laws of Library Science and their Implications"	English	UG
11.	Library Science	"Historical foundation of Library"	English	UG
12.	Library Science	"Library as a System"	English	UG

13.	Library Science	“Library automation software”	English	UG
14.	Library Science	“Library automation Library HouseKeeping Operations”	English	UG
15.	Library Science	“Library HouseKeeping operation, Readers Sciences”	English	UG
16.	Library Science	“Digital Library and Institutional repository software”	English	UG

Table 4.13: E-Content/courses on Library and Information Science subject available on SWAYAM PRABHA
(Current, Channel 17)

Swayam Prabha | 34 DTH channels | India | Current |Channel 17						
No.	**Subject**	**Course**	**Topic**	**Faculty Name**	**User Category**	**Telecast Date / Day**
1.	"Library science"	"Library, Information and Society"	"Right to Information Part I"	Dr. Mansi Sharma	OTHER	02-08-2021
2.	Library science	Library, Information and Society	"Model Library Legislation"	Dr. Parveen Babbar	OTHER	02-08-2021
3.	Library science	Library, Information and Society	"Library Legislation in the Indian States- II"	Dr. Parveen Babbar	OTHER	03-08-2021
4.	Library science	"Information Sources and Services"	"Information Sources: Categorisation"	Dr. Archana Shukla	OTHER	04-08-2021
5.	Library science	"Libraries: An introduction"	"National Libraries"	Dr. Archana Shukla	OTHER	04-08-2021
6.	Library science	Information Sources and Services	"Primary Sources of Information"	Dr. Archana Shukla	OTHER	05-08-2021
7.	Library science	Libraries: An introduction	"Academic Libraries"	Dr. Archana Shukla	OTHER	05-08-2021

Table 4.14: E-Content/courses on Library and Information Science subject available on SWAYAM PRABHA
(Archive, Channel 17)

Swayam Prabha | 34 DTH channels | India|Archive | Channel 17					
No.	**Subject**	**Course**	**Topic**	**Language**	**User Category**
1.	"Library science"	"ICT Fundamentals"	"Components of Multimedia"	English	OTHER
2.	Library science	ICT Fundamentals	"Designing of Multimedia"	English	OTHER
3.	Library science	ICT Fundamentals	"Features of Multimedia and Authoring Software"	English	OTHER
4.	Library science	ICT Fundamentals	"Classification of Network"	English	OTHER
5.	Library science	ICT Fundamentals	"Introduction to Multimedia"	English	OTHER
6.	Library science	ICT Fundamentals	"Network Architecture and Topologies"	English	OTHER
7.	Library science	ICT Fundamentals	"Types of DBMS"	English	OTHER
8.	Library science	ICT Fundamentals	"Data and Signal"	English	OTHER
9.	Library science	ICT Fundamentals	"Introduction to memory, storage and IO Devices Final"	English	OTHER
10.	Library science	ICT Fundamentals	"Introduction to Computer System"	English	OTHER
11.	Library science	"Information Sources and Services"	"Types of Information Needs"	English	OTHER
12.	Library science	Information Sources and Services	"Selective Dissemination of Information"	English	OTHER
13.	Library science	Information Sources and Services	"Museums and Archives as Sources of Information"	English	OTHER
14.	Library science	Information Sources and Services	"Institutions as Sources of Information"	English	OTHER

15.	Library science	Information Sources and Services	“Non-Governmental Organisations as Sources of Information”	English	OTHER
16.	Library science	“Organizing and Managing Information”	“Planes of Work”	English	OTHER
17.	Library science	Organizing and Managing Information	“Library Catalogue”	English	OTHER
18.	Library science	Organizing and Managing Information	“Condensation Type Services”	English	OTHER
19.	Library science	“Library, Information and Society”	“Current Awareness Services (CAS)”	English	OTHER
20.	Library science	Library, Information and Society	“Importance of Reference Service”	English	OTHER
21.	Library science	Library, Information and Society	“IPR and Patent Act”	English	OTHER
22.	Library science	Library, Information and Society	“Changing Role of Libraries in Society”	English	OTHER
23.	Library science	Information Sources and Services	“Secondary Sources of Information”	English	OTHER
24.	Library science	Information Sources and Services	“Tertiary Sources of Information”	English	OTHER
25.	Library science	Information Sources and Services	“Primary Sources of Information”	English	OTHER
26.	Library science	Information Sources and Services	“Information Sources: Categorisation”	English	OTHER
27.	Library science	Information Sources and Services	“Categorization of Information Sources by Different Thinkers”	English	OTHER
28.	Library science	Library, Information and Society	“Right to Information Part II”	English	OTHER
29.	Library science	ICT Fundamentals	“Ubuntu Operating System”	English	OTHER
30.	Library science	Library, Information and Society	“Right to Information Part I”	English	OTHER

31.	Library science	“BLI”	“Resource Sharing Among Libraries”	English	OTHER
32.	Library science	BLI	“Cataloging of Edited Book Part-II”	English	OTHER
33.	Library science	BLI	“Libraries Services”	English	OTHER
34.	Library science	BLI	“CCC Filing Rules”	English	OTHER
35.	Library science	BLI	“Cataloging of Edited Book Part-I”	English	OTHER
36.	Library science	Library, Information and Society	“Library Legislation in the Indian States- II”	English	OTHER
37.	Library science	Library, Information and Society	“Model Library Legislation”	English	OTHER
38.	Library science	Library, Information and Society	“Library Legislation”	English	OTHER
39.	Library science	“Libraries: An introduction”	“Reader Services in Libraries”	English	OTHER
40.	Library science	Libraries: An introduction	“Acquisition Process in Libraries”	English	OTHER
41.	Library science	Libraries: An introduction	“Library Staff Competencies”	English	OTHER
42.	Library science	“BLII012”	“Document Processing and Organising”	English	-
43.	Library science	“MLIS01”	“National Information Policy”	English	-

4.1.3 E-Gyankosh: E-learning Portal of Digital Learning Resources by IGNOU

"Indira Gandhi National Open University (IGNOU) is a national open university that offers distance and open education in India and other countries. IGNOU has initiated the establishment of a National Digital Repository of learning resources eGyankosh. This repository envisages storing, indexing, preserving, distributing and sharing the digital learning resources of open and distance learning (ODL) institutions of the country. The repository supports seamless aggregation and integration of learning resources in different formats such as self-instructional study materials, audio-video programs, and archives of radio and television-based live interactive sessions."

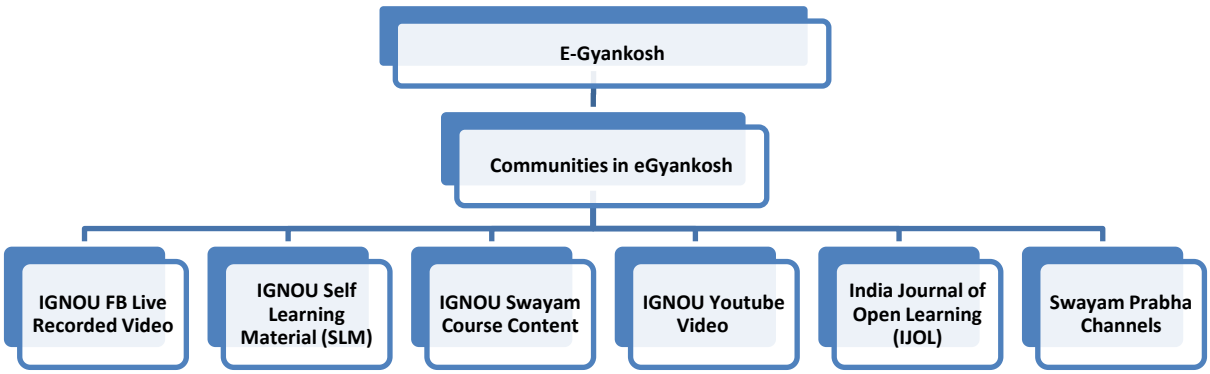

Figure 4.4: Graphical presentation of communities of various content's collection of E-Gyankosh

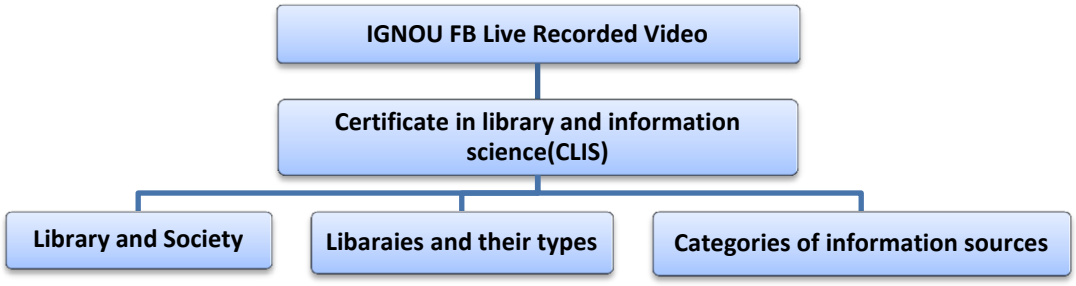

Figure 4.5: Graphical presentation of IGNOU FB Live Recorded Videos

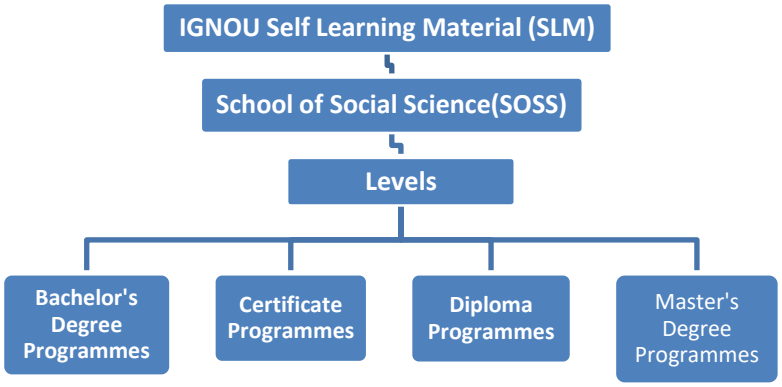

Figure 4.6: Graphical presentation of IGNOU Self Learning Material (SLM)

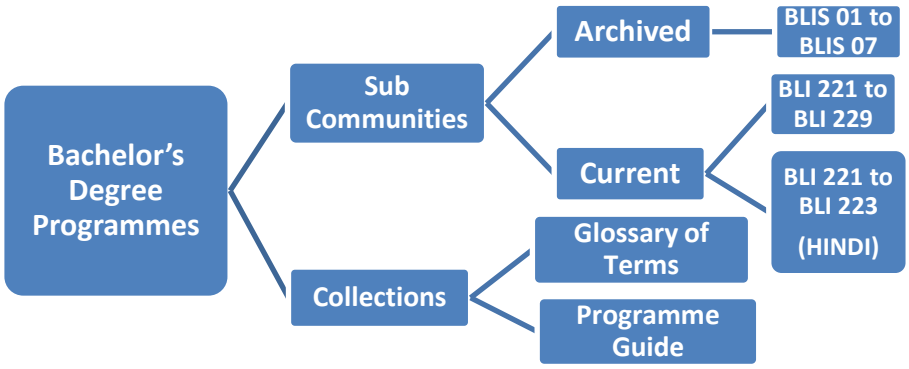

Figure 4.7: Graphical presentation of Bachelor's degree Programmes in Library and Information Science in IGNOU SLM

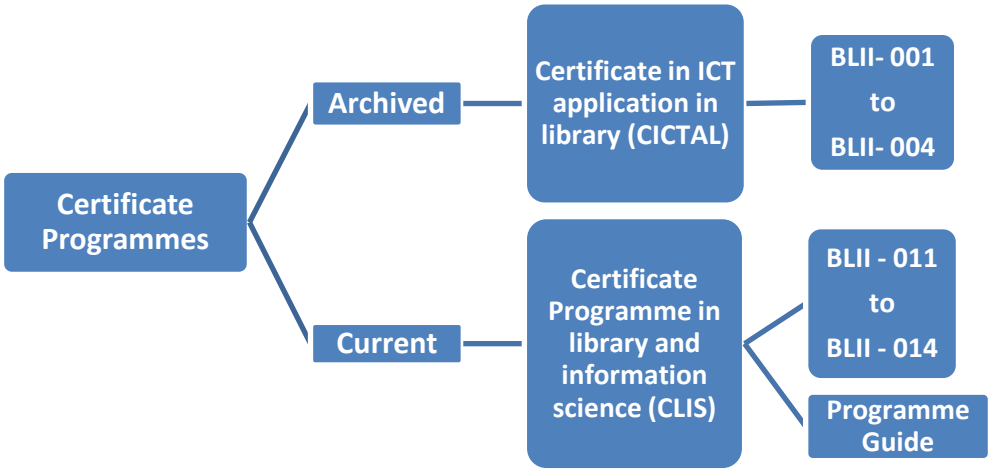

Figure 4.8: Graphical presentation of Certificate Programmes in Library and Information Science in IGNOU SLM

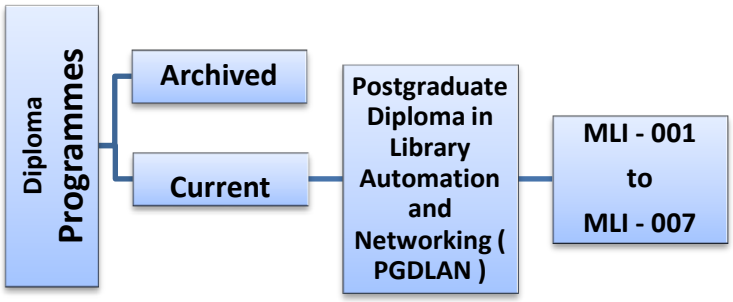

Figure 4.9: Graphical presentation of Diploma Programmes in Library and Information Science in IGNOU SLM

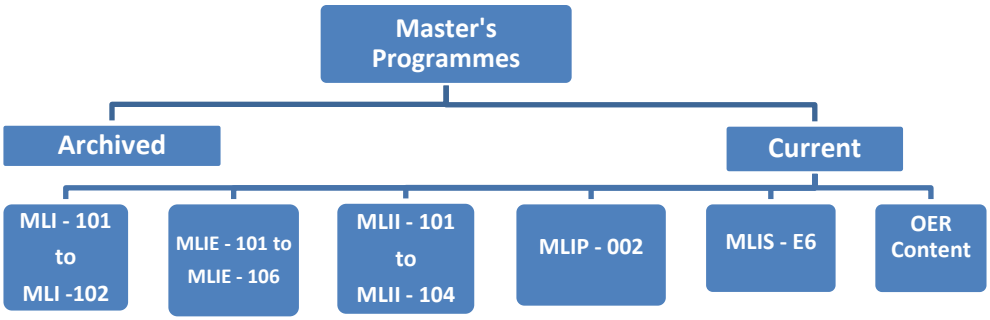

Figure 4.10: Graphical presentation of Master's Programs in Library and Information Science in IGNOU SLM

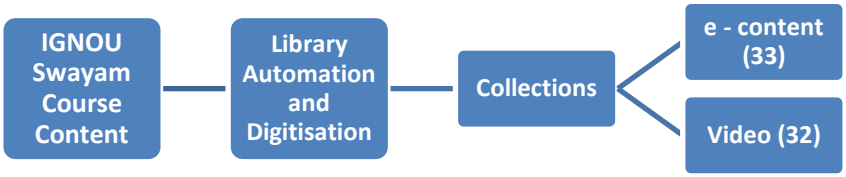

Figure 4.11: Graphical presentation of IGNOU Swayam Course Content in Library and Information Science

Figure 4.12: Graphical presentation of IGNOU YouTube Videos in Library and Information Science

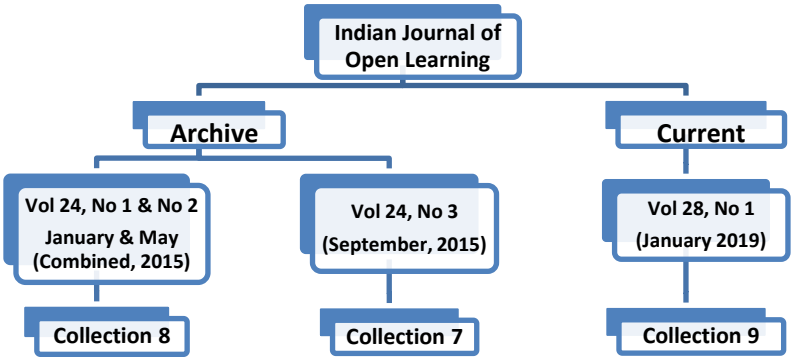

Figure 4.13: Graphical presentation of Indian Journal of Open Learning(IJOL)

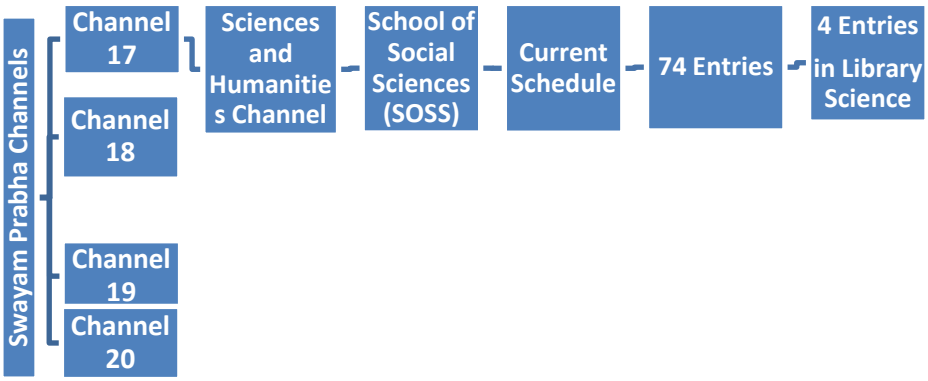

Figure 4.14: Graphical presentation of Swayam Prabha Channels

Table4.15:FB Live Recorded Video on Library and Information Science available on E-GYANKOSH

IGNOU FB Live Recorded Video									
S.No	**Contributors**	**Title**	**Courses**	**Description**	**Issue Date**	**Publisher**	**File Status**	**File Type**	**URI**
1	ZuchamoYanthan	Library and Society	"Certificate in Library and Information Science (CLIS)"	Unit-01	06-06-2020	SOSS, IGNOU	Available	Video	http://egyankosh.ac.in//handle/123456789/65374
2	Archna Shukla	Libraries and their types	"Certificate in Library and Information Science (CLIS)"	BLII-011 Unit 1&2 (For the Students of CLIS)	01-05-2020	SOSS, IGNOU	Available	Video	http://egyankosh.ac.in//handle/123456789/62206
3	Archna Shukla	Categories of Information Sources	"Certificate in Library and Information Science (CLIS)"	BLII-013 (For the Students of CLIS & BLII)	12-05-2020	SOSS, IGNOU	Available	Video	http://egyankosh.ac.in//handle/123456789/62206

4.1.4 e-PG Pathshala (https://epgp.inflibnet.ac.in/index.php)

"e-PG Pathshala is an initiative of the MHRD under its National Mission on Education through ICT (NME-ICT) being executed by the UGC. The content and its quality being the key component of the education system, high quality, curriculum-based, interactive e-content in 70 subjects across all disciplines of social sciences, arts, fine arts and humanities, natural & mathematical sciences, linguistics and languages have been developed by the subject experts working in Indian universities and other R & D institutes across the country. Every subject had team of a principal investigator, paper coordinators, content writers, content reviewers, Language editors and a multimedia team."

Figure 4.15: Snapshot of Homepage of e-PG Pathshala

Total numbers of 395 e-modules are available on e-PG Pathshala under 15 different papers, which are based on bachelor's and master's degree levels in the Library and Information Science subject.

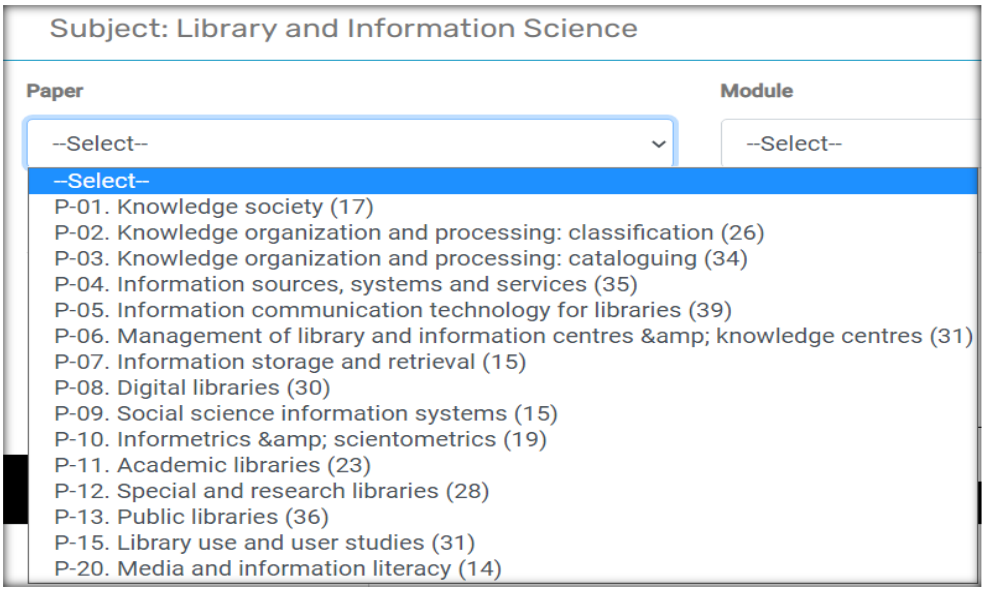

Figure 4.16: E-content available on e-PG Pathshala under Library and Information Science subject

4.1.5 Spoken Tutorial (https://spoken-tutorial.org)

The Spoken Tutorial project is an initiative of the "Talk to a Teacher" activity of the National Mission on Education through Information and Communication Technology (ICT), launched by the Ministry of Human Resources and Development, Government of India.

Spoken Tutorial is a multi-award-winning educational content portal. Here one can learn various Free and Open Source Software all by oneself. The self-paced, multi-lingual courses ensure that anybody with a computer and a desire for learning can learn from any place, at any time and in a language of their choice. All the content published on this website is shared under the CC BY SA license.

The Spoken Tutorial project is being developed at IIT Bombay for MHRD, Government of India.

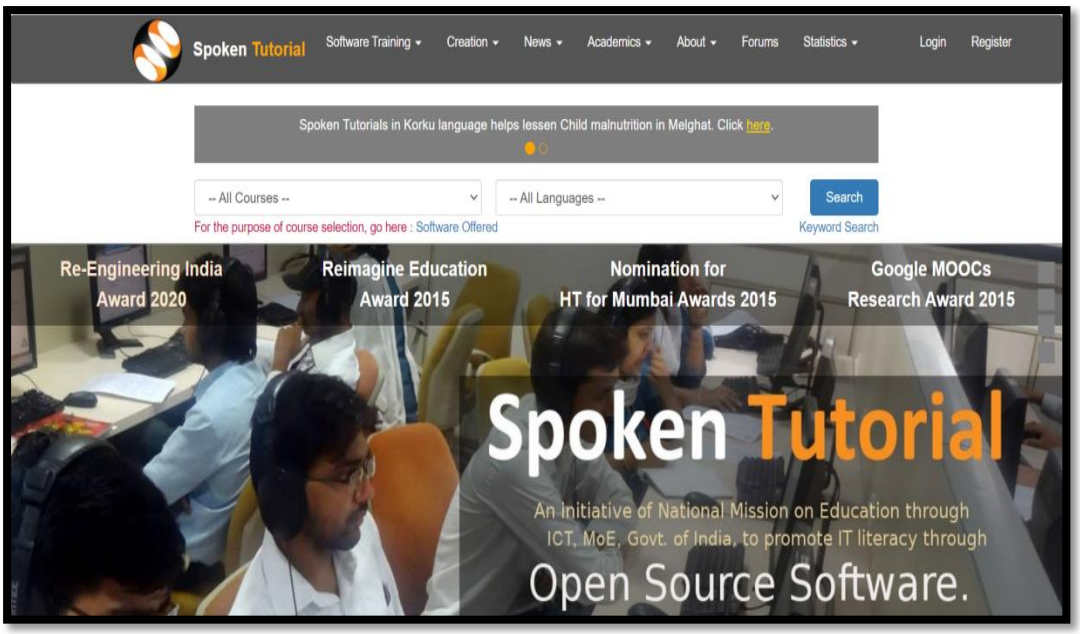

Figure 4.17: Snapshot of Homepage of Spoken Tutorial

Although, many courses are available on the Spoken Tutorial platform through online mode. The majority of courses are software training courses related to computer science discipline. Students of Library and Information subject are learning basic components of IT and useful library software like KOHA, Drupal, DSpace, Joomla, HTML, etc. at their UG and PG level courses. In this context, we can see that such useful software training is also provided by Spoken Tutorial E-Tutor (Table 4.16):

Table4.16: Library and Information Science related Software Training/Workshops using the Spoken Tutorial E-Tutor

S. N.	Software	Certificate Criteria	Application
1.	**"Basic IT Skills package"**	Certificate	"Learn how to use • The **Linux** operating system • **LibreOffice Suite** - for basic Office applications and • **Firefox** web browser - to browse the internet safely This package is useful to all who wish to learn basic IT skills. An absolute must for beginners."
2.	**"Drupal"**	Certificate	• "Drupal is a free and open-source content management system (CMS) written in PHP and distributed under the GNU General Public License. Useful for website-building

			and web applications. • Useful for web developers, website administrators, and UG/PG CSE/IT/CS students who wish to learn website management.”
	“DSpace”	Certificate	• “Installation and Customization of DSpace software for creating and developing Digital Repository.”
3.	**“HTML”**	Certificate	• “HTML elements form the building blocks of all websites.\ • HTML allows the embedding of images and objects and is extensively used to create interactive forms and webpages. Useful for High School and UG/PG students, working professionals - Multi-disciplinary”
4.	**“Introduction to Computers”**	Certificate	• “Absolute basic tutorials on parts of a computer, connecting the parts using cables, printer configuration, creating a Gmail account, sending and receiving mails and using Google Drive. • Useful for first-time computer users of any age group.”
5.	**“Joomla”**	Certificate	• “Learn how to use a Content Management System for building websites, webpages, etc. • Useful for web developers, website administrators, and UG/PG, CSE/IT/CS students who wish to learn website management.”
6.	**“Koha Library Management System”**	Training only, No certificates	• “Learn how to create a library, a librarian, add books, journals, and other library items, Marc framework, order a book, cataloging, circulation, add subscription, serial subscription, receive serials, OPAC search, access library on the web, cataloging using Z39.50, manage budgets and funds, convert Excel data to MARC, import MARC in Koha. • Koha is useful for Library Science students and Library Staff who wish to create a Koha

			library for their institute.”
7.	**“LibreOffice Suite”**	Certificate	• “Trains in basic computer usage skills like Word processing, Spreadsheet, Presentation using the LibreOffice components **Writer**, **Calc** and **Impress**. • One can also learn other useful components like **Draw**, **Math** and **Base** in this series. Useful for school students (7th standard and above) and anyone who wishes to learn to use an OFFICE suite.”
8.	**“Linux & Ubuntu** **BOSS Linux”**	Certificate	• “Free operating system, almost neutral to virus attacks and no hassles for licensing issues. • Polytechnic/UG/PG computer hardware students and system administrators will greatly benefit by learning to use the Linux OS.”
9.	**“Moodle Learning Management System”**	Certificate	“Moodle LMS is one of the most popular LMS used globally by educational institutes. Teachers will learn to- • upload and edit content for their course. • create assignments and quizzes to assess the students’ progress and • enroll students in their course and communicate with them.”

4.1.6 National Digital Library of India (NDLI) (https://ndl.iitkgp.ac.in/)

It is an enormous online library containing 6.5 million books. It gives free access to numerous books in English and Indian dialects. NDLI was launched in pilot form in 2016, and it was conducted by the Ministry of Human Resource Development. But during 2017, the library expanded its offerings to over 12 million ebooks and other items in 100+ different languages. The digitization process is ongoing and continues to add more and more texts to its repository. As of November this year, it counted 1.2 million registered users. As indicated by an MHRD official, these activities were taken with the expectation of augmentation in Gross Enrolment Ratio in advanced education from 24.5 to 30 by 2020 **(Makkar, 2017)**.

It also launched a mobile app in 2017, which happened to share the mBillionth South Asia Award with BYJU and WorldReader in the category of "Learning and Education."

As broadband access increases, the digital library has been reaching more and more schools and districts. Most recently in December, the NDLI teamed up with the state Departments of Libraries and Research in Jammu and Kashmir for a workshop on how to increase access and integrate with the existing state online library.

"In the age of the Internet, massive changes were occurring in the world, making it necessary to adopt and benefit from new technological and digital inventions, said Minister of State Education, Priya Sethi according to India Today." "The initiative would help students get online access to the best possible educational resources within and outside the country and once our libraries are fully digitized, joining hands with NDLI will contribute a lot in facilitating the teaching-learning process and the research work."

The "Digital India" campaign marches forward. The limits up to which this online/E-learning mode of education will go in the near future is tough to narrate.

Figure 4.18: Snapshot of Homepage of National Digital Library of India (NDLI)

When we browse using subject-wise on the NDLI website, the arrangement of subject-wise classification is based on the UDC scheme. A total number of

252,421 items (e-content/books/resources, etc.) are available in Library and Information Sciences under the broad subject category "Computer Science, Information & General Works." 'Third Level Subject' browsing feature is also available after clicking on a specific subject on the NDLI website. According to this, the number of items on the third level subject or sub-category of Library and Information Science are as follows (Table 4.17)

Table 4.17: Category wise number of Items on LIS available on NDLI

NDLI https://ndl.iitkgp.ac.in **(81,761, 152 items)** ⇩	
Computer Science, Information & General Works **(16,631, 766 items)** ⇩	
Library and Information Sciences **(252,421 items)** ⇩	
Third Level Subjects of Library and Information Sciences	
Library relationships	481 items
Administration of physical plant	121 items
Personnel management	50 items
Library operations	11,621 items
Libraries for specific subjects	1,119 items
General libraries	5,673 items
Reading and use of other information media	1,887 items

4.1.7 National Academic Depository (NAD) (https://nad.gov.in/)

The Indian higher education system includes nearly 1,000 universities and institutions. Indian pedagogy system could be a giant and growing system with roughly 55 college boards, 359 state universities, 123 deemed universities, 47 central universities and 260 non-public universities. Excluding these, there are 107 different establishments like IISc/IITs/IIMs/NITs/IISERs/IIITs/NITIE and twelve different

centrally funded establishments. Learners can earn many different degrees, certificates, and accreditation from these educators. Each of them, along with several other private or public initiatives, also provide grants, awards, and scholarships for India's vast population of learners. These establishments issue educational awards to students as well as degrees, diplomas and certificates, besides mark sheets and analysis reports. Excluding these, varied Ministries/Departments and different talent-based establishments conjointly dispense certificates, sheepskins and advanced diplomas.

The National Academic Depository seeks to track all certificates, degrees, awards, etc. obtained by India's learners and provides a reputable source for potential employers. Paper records of academic accomplishment can be easily damaged or forged. Digitizing preserves them in a more secure form.

The individuals who are moving into work or following higher investigations need a respectable, true and helpful component for access, retrieval and validation of such educational awards. Retrieval of recent educational records maintained in paper type is cumbersome. Educational records maintained in paper type are liable to hazards like spoilage and forgery. Students typically face difficulties in getting copies of their certificates/mark sheets whenever they're lost or destroyed. Maintaining educational awards during a digital installation would modify academic establishments, students and employers' online access/retrieval/ verification of digitized educational awards and shall eliminate deceitful practices like the shaping of certificates and mark sheets. The Government has already created dematerialization of monetary securities to confirm the mercantilism of monetary securities perfectly and clearly. It enabled mercantilism and transfer of shares electronically while not involving physical share certificates and transfer deeds, so eliminating the paperwork concerned in script-based mercantilism and share transfer system. Identical is effectively replicated in respect of educational awards as these are even a lot of vital guarantors of the longer term than money securities.

Maintaining educational awards in associate degree electronic installation would supply profit to academic establishments, students and employers by facultative online access to academic awards which can eliminate the requirement for persons to approach educational establishments for getting transcripts of such awards or

marks-sheets for verification. It might conjointly eliminate deceitful practices like the shaping of certificates and mark sheets, by facilitating online verifications thence. The National educational installation aims at making certain a reputable and convenient mechanism for online lodging, verification, and authentication of the {academic or tutorial} awards issued by varied educational establishments.

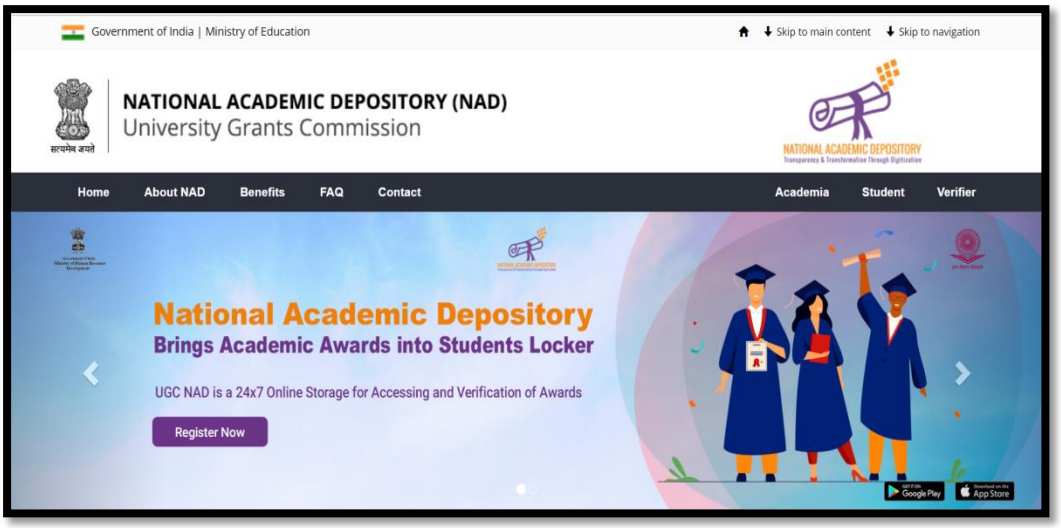

Figure 4.19: Snapshot of Homepage of the National Academic Depository (NAD)

4.1.8 National Knowledge Network (https://nkn.gov.in)

"National Knowledge Network (NKN) is a State-of-the-craftsmanship system to advance coordinated effort and trade of learning among instructive and inquire about the foundation. A portion of the NKN empowered applications are: Virtual Class Rooms, Collaborative research bunches over NKN (shut client gathering), NDL, NPTEL, different Grids (like Cancer Grid, Brain Grid. Environmental Change Grid), and so forth as of October 2018, 1672 Edge connects to organizations have been charged and made operational under NKN the nation over which incorporates 388 connections relocated from NMEICT to NKN. 497 locale connects to NIC."

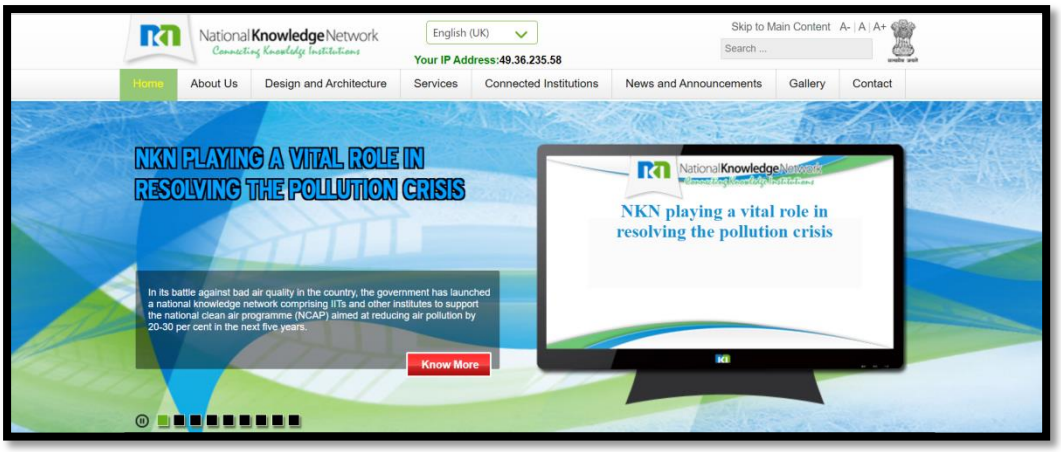

Figure 4.20: Snapshot of Homepage of National Knowledge Network

4.1.9 CEC Learning object repository

"The consortium for Educational Communication (CEC) is an inter-university center on electronic media, established by the University Grants Commission (UGC). CEC's Learning Object Repository (LOR) is an Open Courseware initiative having educational resources in different subjects like Archeology, Biology, Botany, Chemistry, Commerce, Computer Science, Economics, Education, English, Fine Arts, etc. Users have the facility to browse the LOR by using various options such as Topic, Subject, Learning Object, Keywords, etc."

4.1.10 National Programme on Technology Enhanced Learning (NPTEL)

The National Programme on Technology Enhanced Learning (NPTEL) is an Open Courseware initiative by the seven Indian Institutes of Technology (Bombay, Delhi, Kanpur, Kharagpur, Madras, Guwahati and Roorkee) along with the Indian Institute of Science(IISc), Bangalore in 2003. It is funded by the Ministry of Human Resource Development (MHRD), Government of India. Six major engineering disciplines have been covered in this project so far (NPTEL Phase I) at the undergraduate (B.E./B.Tech) level. In addition, Five core disciplines were identified, namely, civil engineering, computer science and engineering, electrical engineering, electronics and communication engineering and mechanical engineering, and 235 courses in web/video format were developed in this phase.

The main goal of NPTEL Phase II (2009-14) was to build on the engineering and core science courses launched previously in NPTEL Phase I. An additional 600 web and video courses were created in all major branches of engineering, physical sciences at the undergraduate and postgraduate levels and management courses at

the postgraduate level. Several improvements such as indexing of all video and web courses and keyword search were implemented.

NPTEL has been offering self-study courses across engineering, humanities and science streams for more than a decade. These are available at: http://nptel.ac.in. Since March 2014 NPTEL has been offering online certification for its courses, the highlight being the certification exam through which the student gets an opportunity to earn a certificate from the IITs! These are available at: https://onlinecourses.nptel.ac.in

To take this initiative forward and to encourage more students across colleges to participate in this initiative, the SWAYAM-NPTEL chapter in colleges has been set up (with the approval of the management) which will be under the headship of a faculty member of the college, who would be the Single Point of Contact (SPOC). SPOC will be kept updated about all the latest NPTEL initiatives and information which he can disseminate among the students. He can identify suitable mentors for various courses, who can ensure that students actively participate in the course, timely submit the assignments given to them as well as solve any problem/query that the students may face.

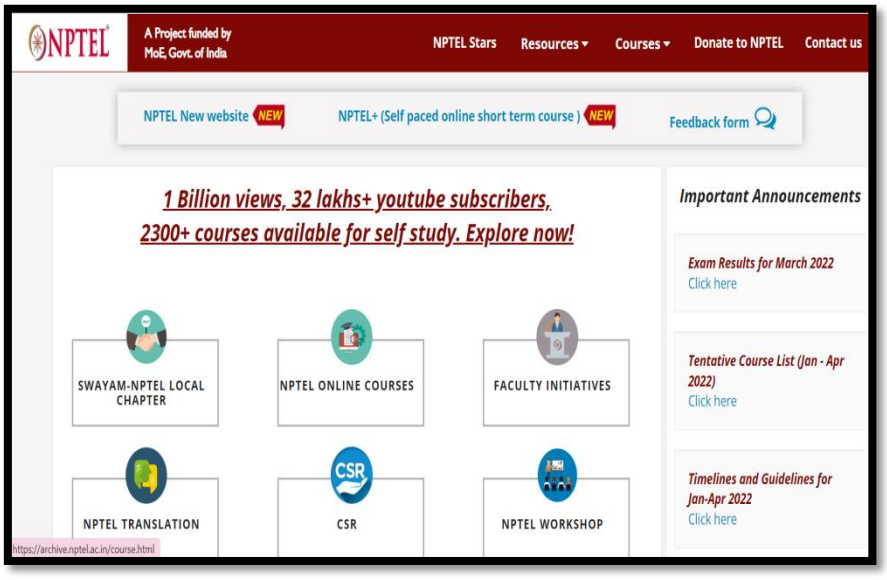

Figure 4.21: Snapshot of Homepage of The National Programme on Technology Enhanced Learning (NPTEL)

4.1.11 UNESCO-SALIS E-learning Portal

The Indian Society for the Advancement of Library and Information Science (SALIS), in collaboration with UNESCO, launched the E-learning Portal for raising awareness of information literacy. The Portal aims to raise awareness, sensitize and enhance information literacy, competency and skills of common information users as well as information professionals and educators in the South Asian sub-region. Its objectives are fully in line with UNESCO's mandate to bridge the digital divide and UNESCO's vision of knowledge societies. The portal will be developed using Moodle Open Source software, an internationally renowned Courseware Management System (CMS), or Virtual Learning Environment (VLE).

4.1.12 Indo-German eGurukul on Digital Libraries

The Indo-German eGurukul on Digital Libraries is a collaborative project of Documentation Research and Training Centre (DRTC), Bangalore and Goethe-Institute in New Delhi to facilitate self-paced learning on digital libraries. Presently this E-learning portal has various modules covering different aspects of digital libraries. "The Indian digital library experts, in collaboration with their German counterparts, have developed the content of these modules."

4.2 Library and Information Science Education through E-learning in India

Numerous colleges and universities have received electronic modes for giving education and training. Books, schedules and other course materials are accessible online for the studies. A few establishments have made them accessible openly while in certain foundations it is encoded. The major E-learning portals and websites in India that provide E-learning courseware/content/material in the LIS sector including a portion of the E-learning courseware accessible for Library and data science instruction in India **(Mishra, 2019)** are described in tabular form as follows:-

Table 4.18 E-learning Initiatives in LIS by Universities/Institutes

S. No.	University/Institute	City/State	LIS Courses	Link
1.	"Tata Institute of Social Sciences (TISS)"	Mumbai, Maharastra	"Master in Library and Information Science (M.Lib.I.Sc.)"	**https://www.tiss.edu**
2.	"U.P. Rajarshi Tandon Open University"	Prayagraj, Uttar Pradesh	"Bachelor in Library and Information Science"	**https://www.uprtou.ac.in**
3.	"Netaji Subhas Open University"	Kolkata, West Bengal	"Bachelor and Master in Library and Information Science"	**https://www.wbnsou.ac.in**
4.	"Central Board of Secondary Education (CBSE)"	New Delhi	"LIS courseware at the senior secondary level"	**https://www.cbse.gov.in**
5.	"National Institute of Open Schooling (NIOS)"	Noida, Uttar Pradesh	"LIS courseware at the senior secondary level"	**https://www.nios.ac.in**
6.	"Krishna KantaHandiqui State Open University"	Guwahati, Assam	"Diploma in Library and Information Science (DLISc)"	**https://www.kkhsou.in**
7.	"Madhya Pradesh Bhoj Open University"	Bhopal, Madhya Pradesh	"Master's in Library and Information Science (M.Lib.I.Sc) is offered by this university"	**https://www.mpbou.edu.in**
8.	"Vardhman Mahaveer Open University"	Kota, Rajasthan	"Certificate program in digital libraries, DLISc, Blis and M.Lib.I.sc"	**https://www.vmou.ac.in**
9.	"Indira Gandhi National Open University (IGNOU)"	New Delhi	"Certificate in ICT applications in the library (CICTAL), B.Lib.I.Sc, M.Lib.I.Sc and Post Graduate Diploma in	**https://www.ignou.ac.in**

			Library Automation and Networking (PGDLAN)"	
10.	"Gauhati University"	Guwahati, Assam	"MLISc.(2 Yrs integrated), MPhil., Ph.D."	**https://www.gauhati.ac.in**
11.	"North-Eastern Hill University"	Meghalaya	"MLISc.(2 Yrs integrated), Ph.D."	**https://www.nehu.ac.in**
12.	"Manipur University"	Manipur	"MLISc.(2 Yrs integrated), Ph.D."	**https://www.manipuruniv.ac.in**
13.	"Mizoram University"	Mizoram	"MLISc.(2 Yrs integrated), MPhil., Ph.D."	**https://www.mzu.edu.in**
14.	"Dibrugarh University"	Dibrugarh, Assam	"B.Lib.I.Sc. – 1 Yr, M.Lib. I. Sc. – 1 Yr"	**https://www.dibru.ac.in**
15.	"Assam University"	Silchar, Assam	"MLISc.(2 Yrs integrated), MPhil., Ph.D."	**https://www.aus.ac.in**
16.	"Assam Women's University"	Jorhat, Assam	"MLISc.(2 Yrs integrated)"	**https://www.awu.ac.in**
17.	"Tripura University"	Agartala, Tripura	"B.L.I.Sc. – 1 Yr, M.L.I.Sc. – 1 Yr"	**https://www.tripurauniv.ac.in**
18.	"Amity University"	Noida, Uttar Pradesh	"B.L.I.Sc."	**https://www.amity.edu**
19.	"University of Delhi"	Delhi	"B.L.I.Sc., M.L.I.Sc., M.Phil., Ph.d."	**https://www.dlis.du.c.in**
20.	"University of Kashmir"	Srinagar, Jammu and Kashmir	"M.L.I.Sc."	**https://www.kashmiruniversity.net**
21.	"The Global Open University"	Nagaland	"B.L.I.Sc., M.L.I.Sc."	**https://www.nagaland.net.in**

4.3 Discussion and Conclusion:-

In this chapter, we have gone through the various E-learning initiatives in higher education and in the field of LIS education in India.

The Indian government has initiated many different programs/portals for providing E-learning in higher education. The prominent ones which have been described in detail include

- Swayam, SwayamPrabha, e-Gyankosh, e-PG Pathshala, Spoken Tutorial, NDLI, NAD, NKN, CEC, NPTEL, and so on. Various MOOCs courses in LIS by UGC, IGNOU, AICTE, CEC and ARPIT MOOC in LIS by IGNOU as well as other courses in LIS are carried out on the SWAYAM portal. E-Contents/ Courses in LIS are available on SwayamPrabha channels and several programs and courses in LIS by IGNOU are available on e-Gyankosh. Different other courses and programs of varying levels (Certificate, Diploma, or Degree) are also available on different portals, named above.

Many educational institutes / Universities provide LIS education through E-learning in India, prominent of which along with the courses they offer are:- CBSE and NIOS provide LIS courses at the Senior Secondary Level; IGNOU, VMOU and KHSOU offer Diploma courses in LIS; IGNOU, VMOU, UPRTOU, NSOU and some others provide Bachelors course in LIS; and TISS, NSOU, MPBOU, VMOU, IGNOU and many others offer Masters course in LIS in the E-learning mode.

So many E-learning initiatives have been started in higher education in India and also a multitude of Institutes as well as Universities which are offering, maintaining and carrying forward the E-learning initiatives in the LIS sector in India.

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Chapter – 5

Data Analysis and Interpretation

5.0 Introduction

To acquire and assess the information needed in our study about the diverse aspects of E-learning Initiatives in the Library and Information Sector in India, the data was collected through two cautiously framed questionnaires: One for the LIS teachers/experts/professionals in E-learning and the other for LIS e-learners/students. Next phase in the study process was analysis and elucidation of the acquired data, after collection. The data was then presented, analyzed and compared, using tables, figures, graphs and statistical methods. Analysis of the data and its interpretation has been reported separately as below in two parts:

Section – I: Survey of LIS Teachers/Experts/Professionals in E-learning.

Section – II: Survey of LIS e-Learners/Students.

Section – I: Survey of LIS Teachers/Experts/Professionals in E-learning

5.1 Survey of LIS teachers/experts/professionals in E-learning

The questionnaire for LIS teachers/experts in E-learning was dealt with their opinion regarding different aspects of E-learning in the LIS sector in India. The questionnaire was divided into three parts:

1. Demographic Information;
2. Background Knowledge of the Concept of E-learning, and
3. General Attitude of LIS e-Teachers Towards E-learning for LIS in India including suggestions and general remarks

A total of 100 responses were collected and analyzed to meet the study's objectives. The analysis is divided into sections below:

5.1.1 Demographic Information of LIS teachers/experts/professionals

Demographical information refers to the essential and assessable basic statistics of a population such as gender, age, education, and so on. So the figures/tables below will include information such as gender, age, and education of teacher/expert/professional respondents in the Library and Information Science sector. The data has been analyzed as under:

5.1.1.1 Age Group Distribution of LIS teachers/experts/professionals

The LIS teachers/experts/professionals belonging to varied age groups have been represented in Figure 5.1.1.1. According to the figure below, multitude of the respondents belonged to the age group 35-45 years which is 38(38%) in number. This age group is a normal representative of young and dynamic teachers/experts/professionals. Second in frequency comes, the age group 45-55 years accounting for 28(28%) of the total, then comes the group 25-35 years with 21(21%) and lastly the age group 55 to above which is rare for teachers/experts/professionals using E-learning and covers only 13(13%) respondents.

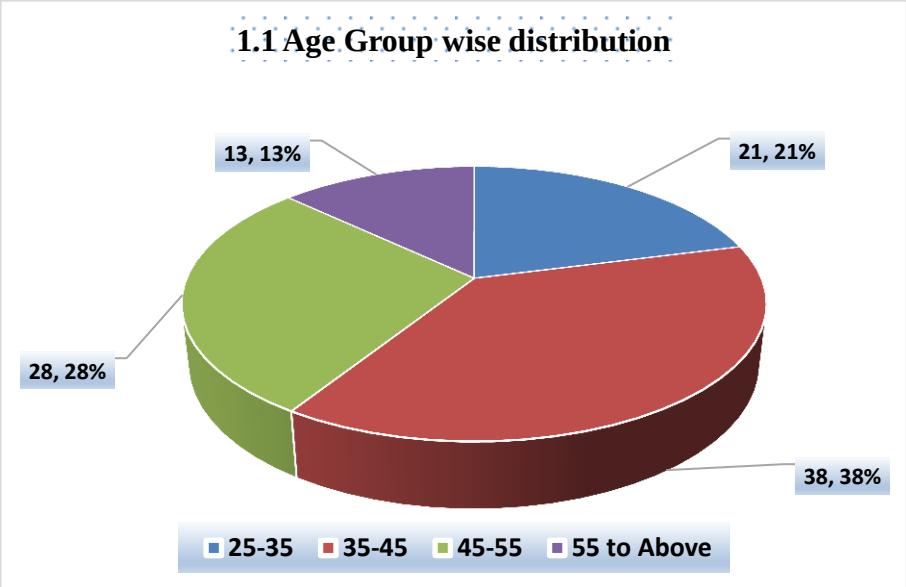

Figure 5.1.1.1Age Group Distribution of LIS teachers/experts/professionals

5.1.1.2 Gender-wise Distribution of LIS teachers/experts/professionals

Respondents of the questionnaire for LIS teachers/experts/professionals have been differentiated gender-wise as shown in Figure 5.1.1.2, below. It is clear that out of the total 100 responses received, 78(78%) respondents belong to the male gender

as compared to 22 (22%) belonging to the female gender. Thus the participation of male respondents is substantially more when compared with that of the female respondents.

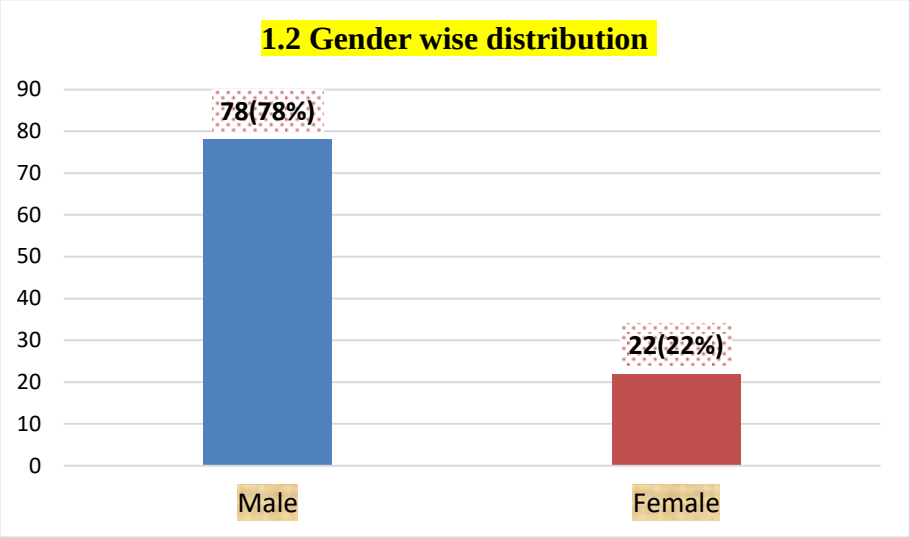

Figure 5.1.1.2Gender-wise Distribution of LIS teachers/experts/professionals

5.1.1.3 Professional Experience of LIS teachers/experts/professionals in E-learning

The LIS teachers/experts/professionals with varied professional experience have been represented in Figure 5.1.1.3. According to the figure below, the maximum number of respondents belongs to the experience range group of More than 15 years which is 50(50%) in number. Second in frequency comes the range group 10 to 15 years accounting for 22(22%) of the total, then comes the group 5 to 10 years with 16(16%) and lastly the range group Less than 5 years which covers only 12(12%) respondents. The data shows that most of the teachers/experts/professionals of LIS are well versed with E-learning and are using it for a long time.

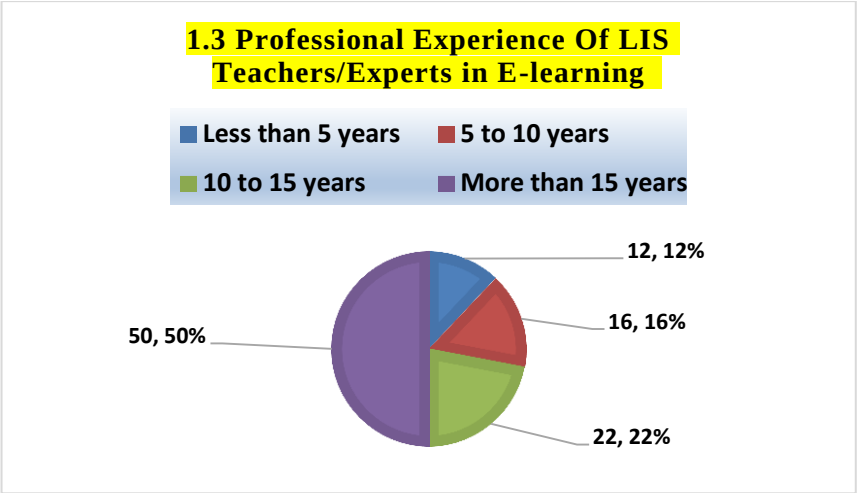

Figure 5.1.1.3Professional Experience of LIS teachers/experts/professionals in E-learning

5.1.2 Background Knowledge of Concept of E-learning

In this part of the questionnaire, we have tried to perceive the general and background knowledge of the teachers or professionals of the Library and Information Science sector regarding various aspects of E-learning in India. The diverse questions put forward in this section helped us to know about whether the teachers/experts/professionals of LIS consider E-learning useful in the LIS sector in India, about their being engaged in E-learning activities in LIS teaching or providing LIS services, their role in E-learning activities, about conduction of any awareness program of E-learning for LIS students, about their knowledge of OERs, about the creation of any E-learning content for LIS students, about the use of any E-learning portals or applications or platforms for teaching or supporting users, about the working knowledge of LMS, about the use of other social tools and technologies of E-learning, benefits to students through the E-learning facilities at their institute and rating of the available E-learning resources. Responses to the questionnaire have been enumerated in form of tables and figures below and helped us to understand the background knowledge of teachers/experts/ professionals regarding E-learning in LIS in India. The analysis of the data has been done in the following manner:

5.1.2.1 Do you consider that E-learning is useful in the LIS sector in India?

The question 5.1.2.1 was used to ask the teachers/experts/professionals whether they believe that E-learning is useful in the LIS sector in India. The answers to this question were in the form of 'Yes' or 'No', in which 97(97% of the)

respondents replied with Yes specifying that they believe E-learning to be useful in the LIS sector in India. Only 3(3%) replied with No, indicating that they do not believe so. Figure 5.1.2.1 represents the graphical plot for the same.

Figure 5.1.2.1Graphical representation of considering E-learning useful in the LIS sector in India

5.1.2.2 Are you engaged in any E-learning activities for Providing Library and Information Services or teaching Library and Information Science?

The query 5.1.2.2 has been formed to ask the teachers/experts/professionals whether they are involved in any E-learning activity for teaching in LIS or for providing LIS services. The answers to this question were also in form of 'Yes' or 'No' and 92(92% of the) respondents replied with 'Yes' specifying that they are involved in either teaching LIS or in providing services to the LIS sector. Only 8(8%) replied with 'No', indicating they are not involved in such activities. Figure 5.1.2.2 represents the graphical plot for the same.

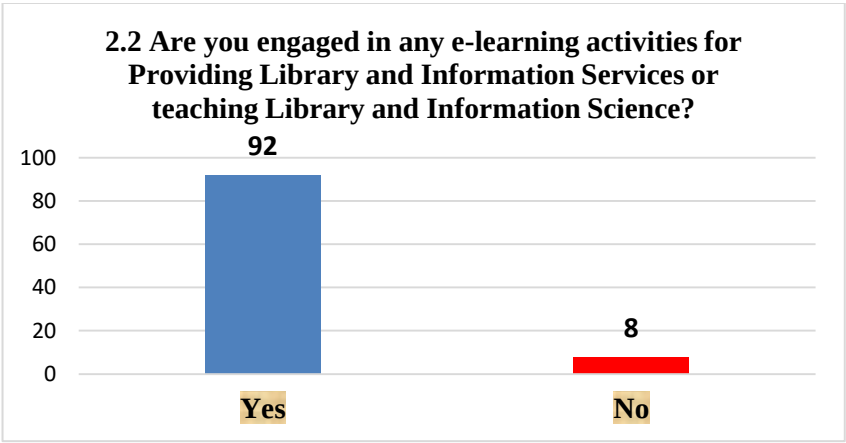

Figure 5.1.2.2Engagement in E-learning activities for providing LIS Services or Teaching LIS

5.1.2.3 What is your role in E-learning activities?

For this query, the teachers/experts/professionals were questioned about their role in E-learning activities and were asked to respond by √ mark for the already mentioned activities, as represented in Table 5.1 below

Table 5.1 Teacher's/expert's role in E-learning

2.3. What is your role in E-learning activities?	No. of Responses (out of 100)
Content/Paper Coordinator	34
Content writer	25
Content Reviewer	23
Supporting to e-learners	58
Handling tools and technologies of E-learning	51
Maintaining E-learning portals/platforms/websites, etc.	36
Making online quizzes	42
Conducting online examination	49
Delivering e-content through LMS	50
Linking different e-resources	0
Facilitating E-learning applications	41

The responses received have been projected as in the role of:-

Content/Paper Coordinator with 34 respondents,

Content writer with 25 respondents,

Content Reviewer with 23 respondents,

Supporting e-learners with 58 respondents,

Handling tools and technologies of E-learning with 51 respondents,

Maintaining E-learning portals/platforms/websites, etc. with 36 respondents,

Making online quizzes with 42 respondents,

Conducting online examination with 49 respondents,

Delivering e-content through LMS with 50 respondents,

Facilitating the E-learning applications with 41 out of the total 100respondents.

Figure 5.1.2.3 below indicates the different roles of teachers/experts/professionals in E-learning activities.

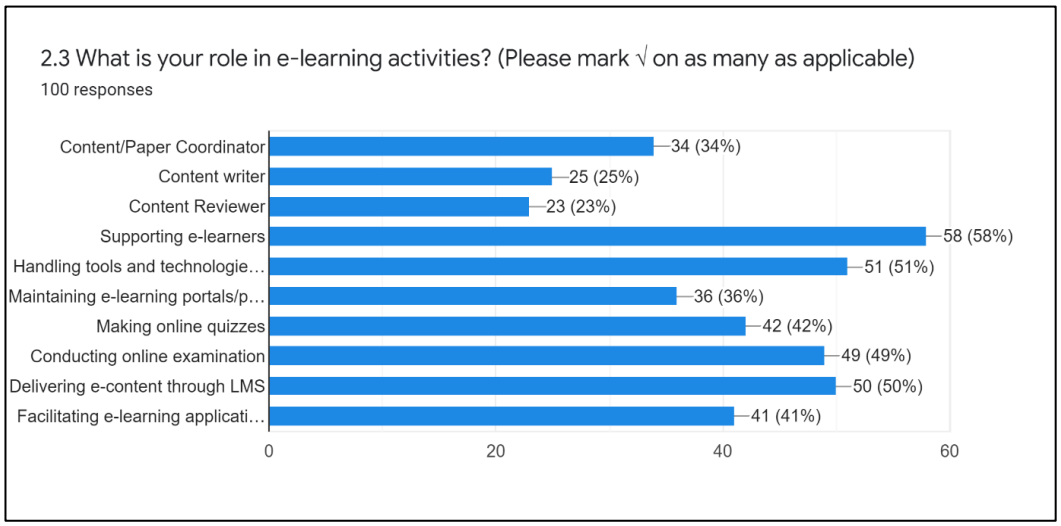

Figure 5.1.2.3Teachers/experts role in E-learning in the LIS sector

5.1.2.4 Have you conducted any awareness program of E-learning for LIS students/learners?

The question 5.1.2.4 was used to ask the teachers/experts/professionals whether they have organized or conducted any awareness program of E-learning for LIS students/e-learners. The answers to this question were in form of 'Yes' or 'No' with 53(53% of the) respondents replying in Yes specifying that they have organized or conducted an awareness program of E-learning for LIS students/e-learners. Only 47(47%) replied with No, indicating they have not done any such task. Figure 5.1.2.4 represents the graphical plot for the same.

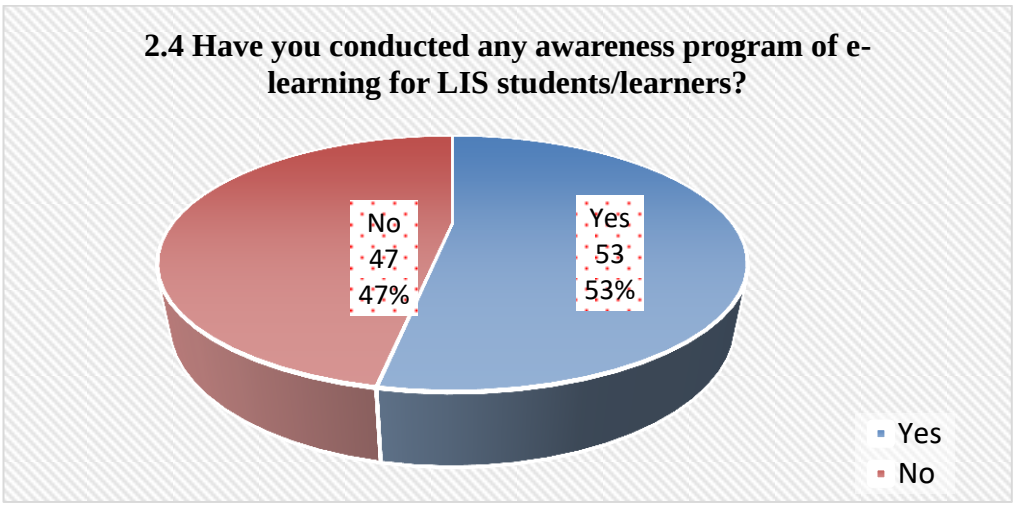

Figure 5.1.2.4Conduction of any awareness program of E-learning for LIS students/learners

5.1.2.5 Do you have knowledge about Open Educational Resources (OERs) for use in E-learning?

The question 5.1.2.5 was used to ask the teachers/experts/professionals about having any cognition of Open Educational Resources for use in E-learning in the LIS sector. The answers to this question were in form of 'Yes' or 'No'. 82(82% of the) respondents replied with Yes specifying that they were aware of or were having knowledge of OERs for use in E-learning in the LIS sector. Only 18(18%) replied with No, indicating they do not have awareness of OERs. Figure 5.1.2.5 represents the graphical plot for the same.

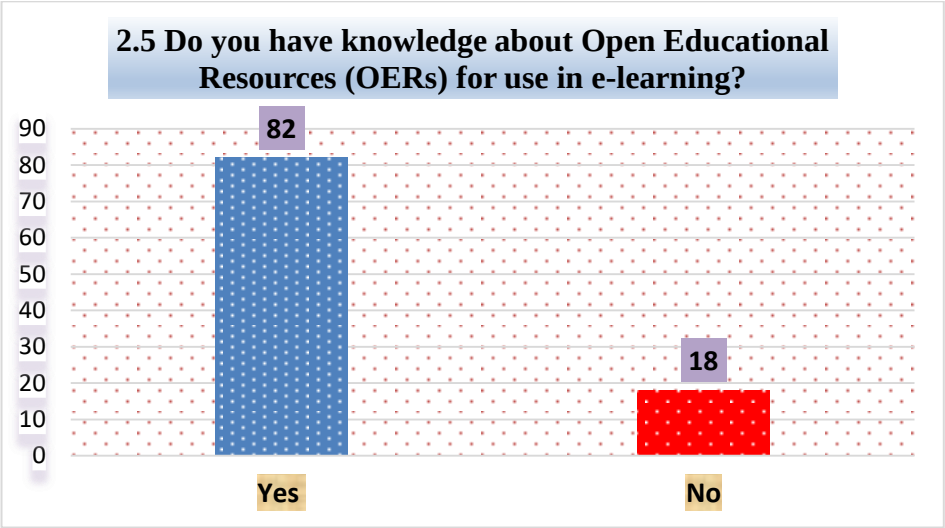

Figure 5.1.2.5Knowledge about OERs for use in E-learning?

5.1.2.6 Have you created any e-content(s) for LIS students or users for their study, learning and research purposes?

This query was used to ask the teachers/experts/professionals about the creation or fabrication of any or some e-content(s)for the students/e-learners/users to be used by them for their study, learning, or research purpose. The answers to this question were in form of 'Yes' or 'No' with 62(62% of the) respondents replying in No specifying that they have not constructed any such e-content. Only 38(38%) replied with Yes, indicating that they have created e-content for the students/e-learners/users to be used by them for their study, learning, or research purpose. Figure 5.1.2.6 represents the graphical plot for the same.

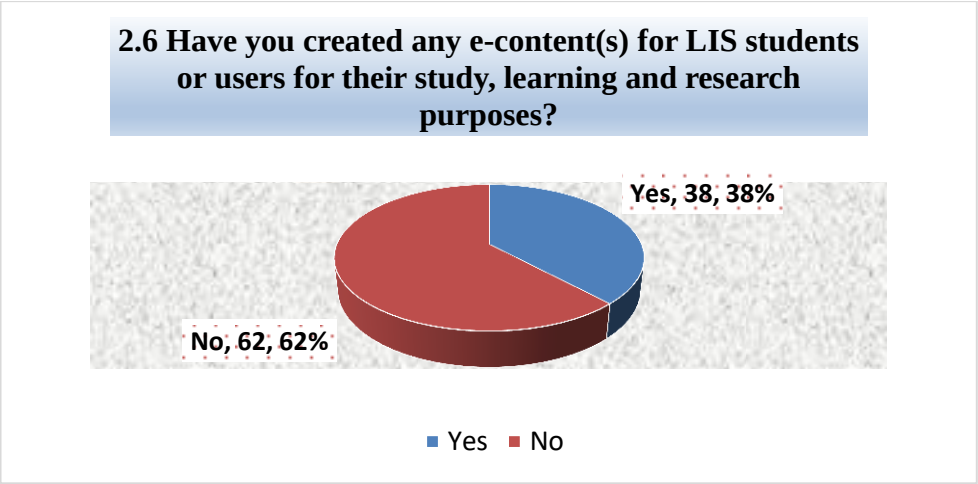

Figure 5.1.2.6Creation of e-content(s) for LIS students or users for their study, learning and research purposes

5.1.2.7 Have you used any E-learning platforms/portals/applications for supporting users/ teaching?

Question 5.1.2.7 asked the teachers/experts/professionals whether they have used any E-learning platforms/portals/applications for teaching Library and Information Science subject or for supporting the users. The answers to this question were in form of 'Yes' or 'No' with 75 of the 100 total respondents replying in Yes specifying that they have used E-learning platforms/portals/applications for teaching or for supporting Library and Information Science students and users. Only 25 replied with No, indicating they have not used E-learning platforms/portals/applications for teaching or for supporting LIS users. Figure 5.1.2.7 represents the graphical plot for the same.

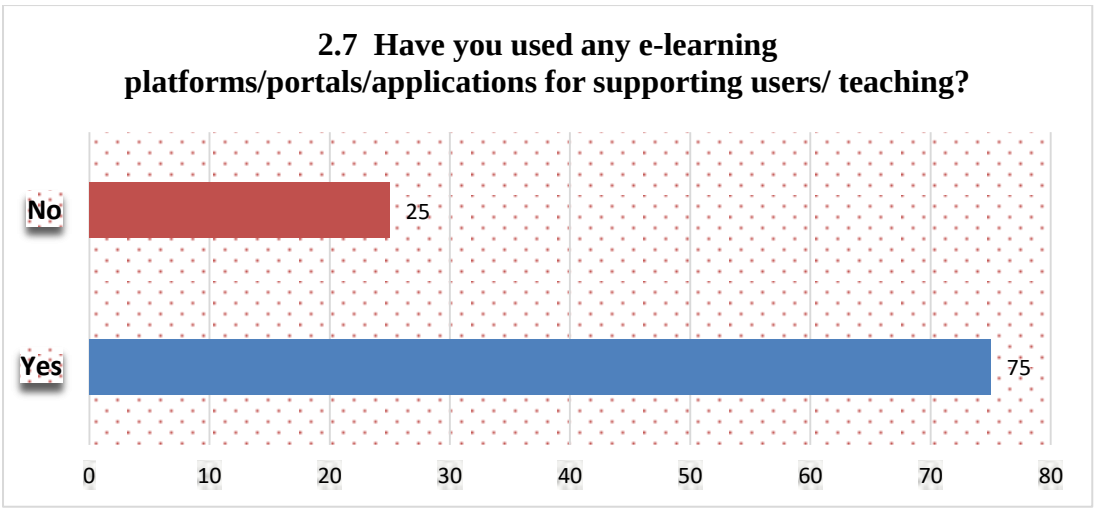

Figure 5.1.2.7Use of E-learning platforms/portals/applications for supporting users/ teaching

5.1.2.8 Have you contributed any content (such as text/ Video/Quizzes, etc.) to the following E-learning platform/portals?

This part of the questionnaire was related to contributions made by the teachers/ experts/professionals of LIS to create any content on the E-learning platform/portal such as movies, texts, quizzes, etc. for synchronized online courses or virtual education or content delivery. It has been subdivided into (a) for synchronized online courses/ virtual education and (b) for Content/ Delivery as represented in Table 5.2.

Table 5.2 Involvement of LIS Teachers/ experts in content (such as: text/ Video/Quizzes, etc.) contribution activities on E-learning platform/portals

2.8 Have you contributed any content (such as: text/ Video/Quizzes, etc.) on following E-learning platform/portals	
(a) Platforms/ Portals for synchronised online courses/ virtual education	**No of Responses**
SWAYAM Portal	20
SWAYAM Prabha	10
Spoken Tutorial	5
NPTEL	10
GIAN – Global Initiative of Academic Network	7
Total	**52**
(b) Platforms/ Portals for Content/ Delivery	**No of Responses**
E-PgPathshala	21
E-Gyankosh	18
National Digital Library of India (NDLI)	27
Vidhya Mitra	8
DIKSHA	12
Total	**86**

5.1.2.8(a) Content (such as: text/ Video/Quizzes, etc.) contribution by LIS Teachers/experts on E-learning platform/portals for synchronised online courses/ virtual education

In this query, the LIS teachers/experts/professionals have been asked whether they have contributed any content in form of text, video, quiz, etc. on any of the following given platforms/portals for synchronized online courses /virtual education. The five most common platforms/portals are already mentioned in form of alternatives which are:-

SWAYAM Portal has been used by 20 teachers/experts/professionals,

SWAYAM Prabha has been used by 10 teachers/experts/professionals,

Spoken Tutorial, has been used by 5 teachers/experts/professionals,

NPTEL has been used by 10 teachers/experts/professionals,

GIAN – Global Initiative of Academic Network, been used by 7 teachers/experts/ professionals, out of the total 100 (so similar in % also) for synchronized online courses /virtual education.

Figure 5.1.2.8(a) below indicates the portals/platforms used by the teachers/experts/ professionals for synchronized online courses /virtual education from the most common E-learning ones.

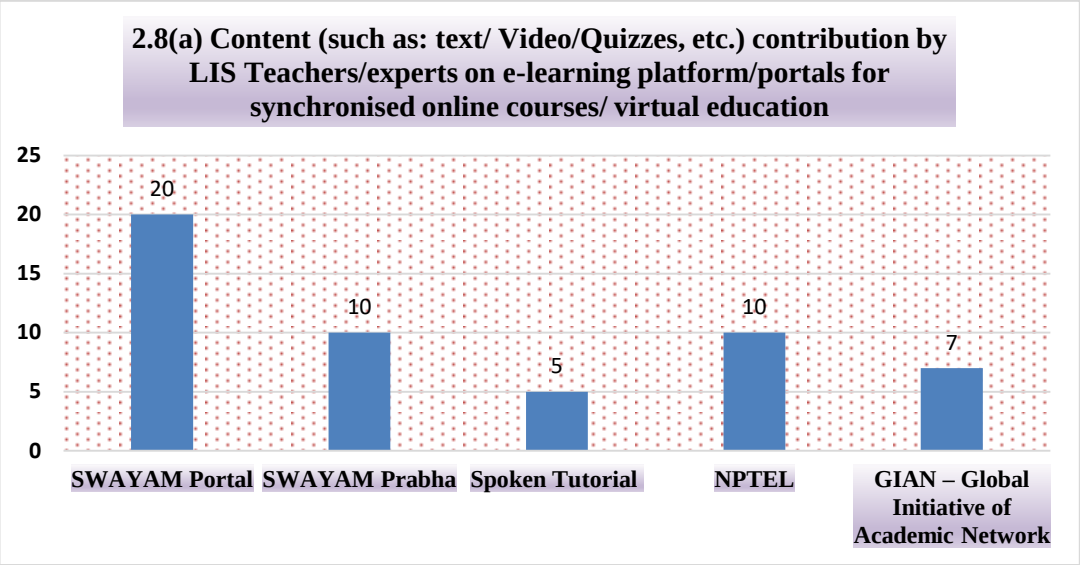

Figure 5.1.2.8(a) Contribution of content by LIS Teachers/experts on E-learning platforms/portals for synchronized online courses/ virtual education

5.1.2.8(b) Content (such as: text/ Video/Quizzes, etc.) contribution by LIS Teachers/experts on E-learning platform/portals for Content Delivery

In this query, the teachers/experts/professionals have been asked whether they have contributed any content in form of text, video, quiz, etc. on any of the following given platforms/portals for Content/Delivery. The five most common platforms/portals are already mentioned in form of alternatives which are:-

E-Pgpathshala has been used by 21 teachers/experts/professionals,

E-Gyankosh has been used by 18 teachers/experts/professionals,

National Digital Library of India (NDLI), has been used by 27 teachers/experts/professionals,

Vidhya Mitra has been used by 8 teachers/experts/professionals,

DIKSHA has been used by 12 teachers/experts/professionals, out of the total 100 (so similar in % also) for Content/Delivery.

Figure 5.1.2.8(b) below indicates the portals/platforms used by the teachers/ experts/professionals for Content/Delivery from the most common E-learning ones.

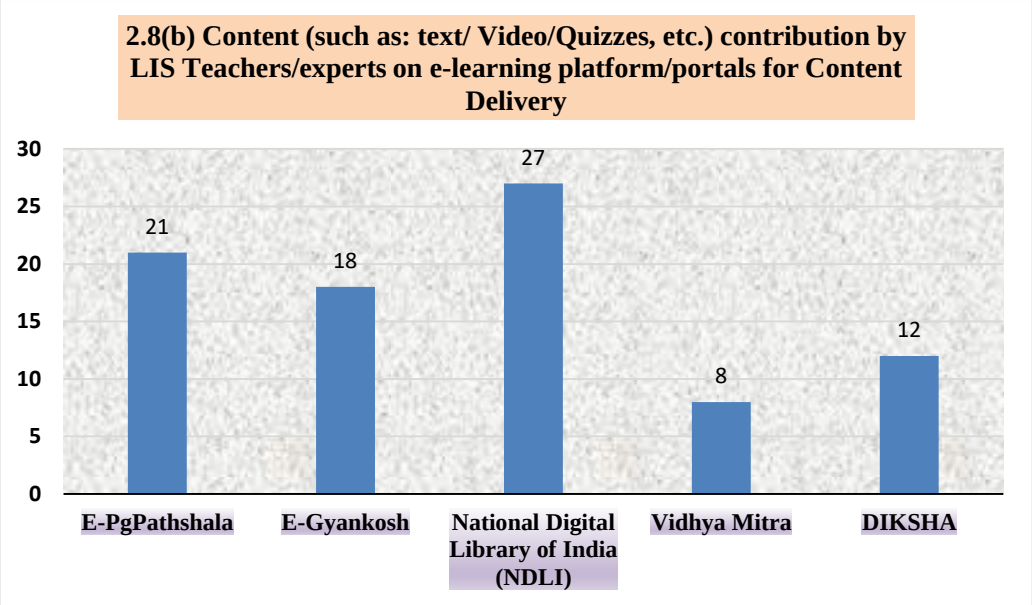

Figure 5.1.2.8(b) Contribution of content by LIS Teachers/experts on E-learning platforms/portals for Content Delivery

5.1.2.9 Do you have working knowledge of Learning Management Systems (LMS)?

This query was used to ask the teachers/experts/professionals whether they have the working knowledge of LMS or not. The answers to this question were in form of 'Yes' or 'No' with 70 respondents replying in Yes, specifying that they have operational awareness of the learning management system. Only 30 replied with No, indicating that they do not have the operational awareness of LMS. Figure 5.1.2.9 represents the graphical plot for the same.

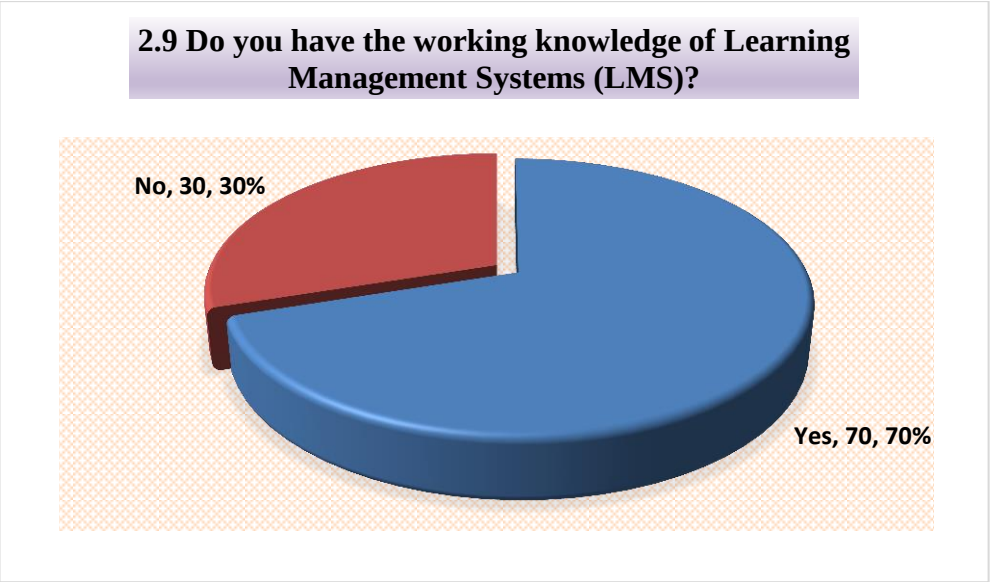

Figure 5.1.2.9Graphical representation of working knowledge of LMS

5.1.2.9(a) Popularity of various LMS as a tool for E-learning among LIS Teachers/ Experts

(Out of 100 respondents)

In this query, the LIS teachers/experts/professionals have been asked about the popularity of various LMS acting as a tool for E-learning amongst them. The seven most common LMS acting as a gadget for E-learning are mentioned in form of alternatives which are:-

Google Classroom, has been found popular by 54 teachers/experts/professionals,

Moodle-LMS has been found popular by 43 teachers/experts/professionals,

SWAYAM has been found popular by 36 teachers/experts/professionals,

Open EDX has been found popular by 12 teachers/experts/professionals,

Blackboard has been found popular by 10 teachers/experts/professionals,

Edmodo LMS has been found popular by 9 teachers/experts/professionals,

Schoology has been found popular by 4 teachers/experts/professionals, out of the total 100 (so similar in % also) in considering the popularity of the different E-learning LMS.

Figure 5.1.2.9(a) below indicates the popularity of different LMS being used as a tool for E-learning amongst the LIS teachers/experts/professionals.

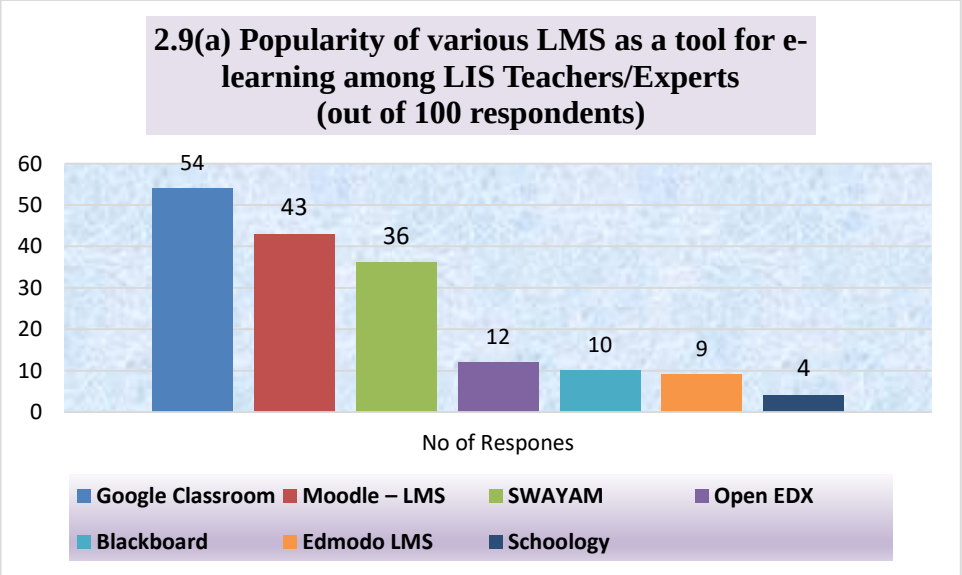

Figure 5.1.2.9(a) Popularity of various LMS as a tool for E-learning among LIS Teachers/Experts

5.1.2.10 Have you used the social tools and technologies of E-learning other than LMS?

Question 5.1.2.10 raised the issue of using social tools and technologies of E-learning other than LMS by the teachers/experts/professionals. The answers to this question were in form of 'Yes' or 'No' with 67 of the 100 total respondents replying in Yes specifying that they have used social tools and technologies of E-learning other than LMS in the LIS sector. Only 33 replied with No, indicating they have not used social tools and technologies of E-learning other than LMS. Figure 5.1.2.10 represents the graphical plot for the same.

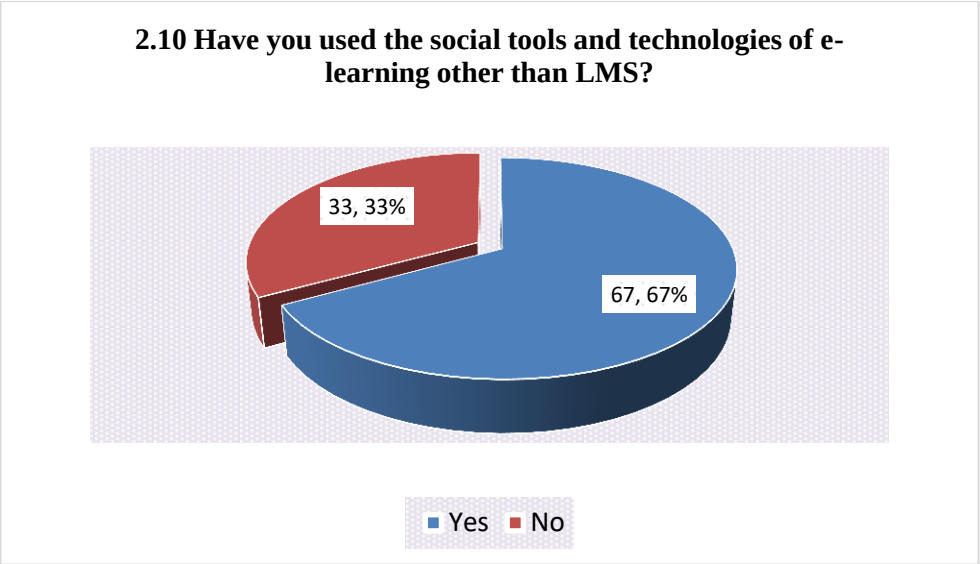

Figure 5.1.2.10 Use of social tools and technologies of E-learning other than LMS

5.1.2.10(a) Effectiveness of Mobile/Computer-based E-learning tools and technologies for delivery of the content

Table 5.3 represents the effectiveness of Mobile/Computer-based E-learning tools and technologies for the delivery of content. Respondents (the teachers/experts/professionals) were asked to rate the different given tools and technologies in preference format from preference 1 to 5. Responses in the table have been analyzed into Highly Recommended (Ranked 1 and 2), Average Recommended (Ranked 3) and Below to Average Recommended (Ranked 4 and 5) options.

WhatsApp: It has been Highly Recommended (Ranked 1 and 2) by 30, Average Recommended (Ranked 3) by 5 and Below to Average Recommended (Ranked 4 and 5) by 32 respondents.

E-mail: It has been Highly Recommended (Ranked 1 and 2) by 25, Average Recommended (Ranked 3) by 12 and Below to Average Recommended (Ranked 4 and 5) by 30 respondents.

Google Drive: It has been Highly Recommended (Ranked 1 and 2) by 29, Average Recommended (Ranked 3) by 14 and Below to Average Recommended (Ranked 4 and 5) by 24 respondents.

One Drive: It has been Highly Recommended (Ranked 1 and 2) by 35, Average Recommended (Ranked 3) by 15 and Below to Average Recommended (Ranked 4 and 5) by 17 respondents.

Face book: It has been Highly Recommended (Ranked 1 and 2) by 34, Average Recommended (Ranked 3) by 21 and Below to Average Recommended (Ranked 4 and 5) by 12 respondents.

LinkedIn: It has been Highly Recommended (Ranked 1 and 2) by 38, Average Recommended (Ranked 3) by 15 and Below to Average Recommended (Ranked 4 and 5) by 14 respondents.

Telegram: It has been Highly Recommended (Ranked 1 and 2) by 37, Average Recommended (Ranked 3) by 11 and Below to Average Recommended (Ranked 4 and 5) by 19 respondents.

YouTube: It has been Highly Recommended (Ranked 1 and 2) by 33, Average Recommended (Ranked 3) by 9 and Below to Average Recommended (Ranked 4 and 5) by 25 respondents.

Thus LinkedIn proved to be the most highly ranked mobile/computer-based E-learning tool/technology for delivery of content as recommended by the teachers/experts/ professionals, Telegram being the second.

Table 5.3 Effectiveness of Mobile/Computer-based E-learning tools and technologies for delivery of the content

Mobile/Computer-based E-learning tools and technologies for delivery of the content	Highly recommended (Ranked 1 & 2)	Average (Ranked 3)	Below to average recommended (Ranked 4 & 5)
WhatsApp	30	5	32
E-mail	25	12	30
Google Drive	29	14	24
One Drive	35	15	17
Face book	34	21	12
LinkedIn	38	15	14
Telegram	37	11	19
YouTube	33	9	25

Figure 5.1.2.10(a) represents the graphical plot for the same.

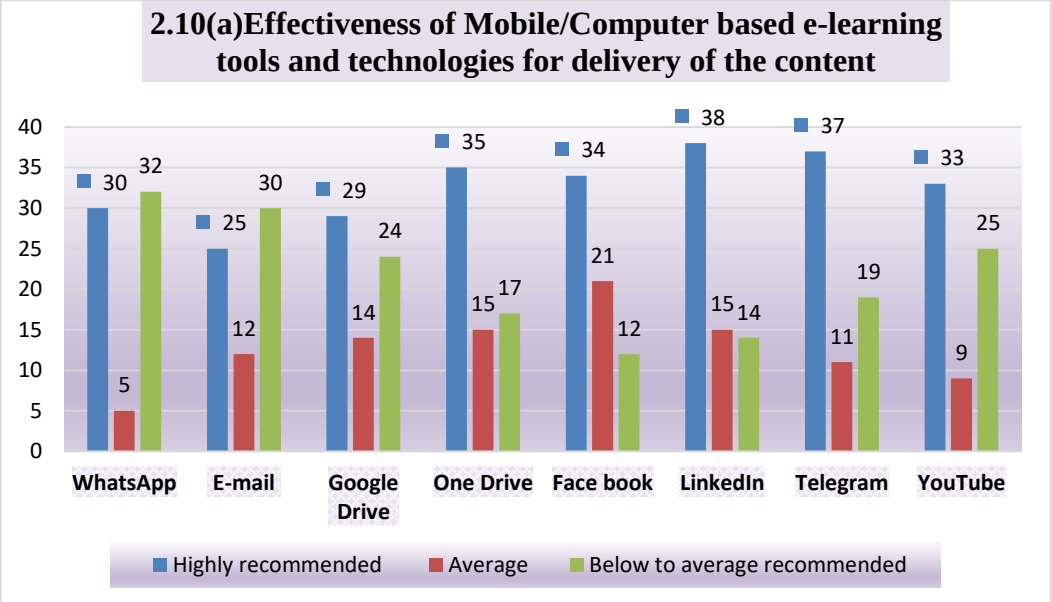

Figure 5.1.2.10(a) Effectiveness of Mobile/Computer-based E-learning tools and technologies for delivery of the content

5.1.2.11 Rate the benefits realized by the students from the E-learning facilities at your institute

Table 5.4 represents the rating of the benefits perceived by the students from the E-learning facilities at the institutes the teachers/experts/professionals are working. Respondents (the teachers/experts/professionals) were asked to rate the different given tools and technologies in preference format from preference 1 to 5. Responses in the table have been analyzed into Above average agreed (Ranked 1 and 2), Average agreed (Ranked 3) and Below to Average agreed (Ranked 4 and 5) options.

The larger reach of the study material and content to the students: It has been Above average agreed (Ranked 1 and 2) by 28, Average agreed (Ranked 3) by 6 and Below to Average agreed (Ranked 4 and 5) by 33 respondents.

Makes the overall learning system more effective: It has been Above average agreed (Ranked 1 and 2) by 28, Average agreed (Ranked 3) by 16 and Below to Average agreed (Ranked 4 and 5) by 23 respondents.

Improvement in knowledge sharing and final results of the student: It has been Above average agreed (Ranked 1 and 2) by 28, Average agreed (Ranked 3) by 16 and Below to Average agreed (Ranked 4 and 5) by 23 respondents.

Add value to the overall education system: It has been Above average agreed (Ranked 1 and 2) by 27, Average agreed (Ranked 3) by 9 and Below to Average agreed (Ranked 4 and 5) by 31 respondents.

Table 5.4 Rating of benefits realized by the students from the E-learning facilities at the institute

Rate the benefits realized by the students from the E-learning facilities at your institute [Improvement in knowledge sharing and final results of the student.]	Above-average agreed (Ranked 1 & 2)	Average agreed (Ranked 3)	Below to average agreed (Ranked 4 & 5)
The larger reach of the study material and content to the students.	28	6	33
Makes the overall learning system more effective.	28	16	23
Improvement in knowledge sharing and final results of the student.	28	16	23
Add value to the overall education system.	27	9	31

The table shows that the teachers/experts/professionals do not give the in-institute E-learning facilities a better rating as far as benefits to the students are concerned. In all the four options below average agreed is the maximum number. Figure 5.1.2.11 represents the graphical plot for the same.

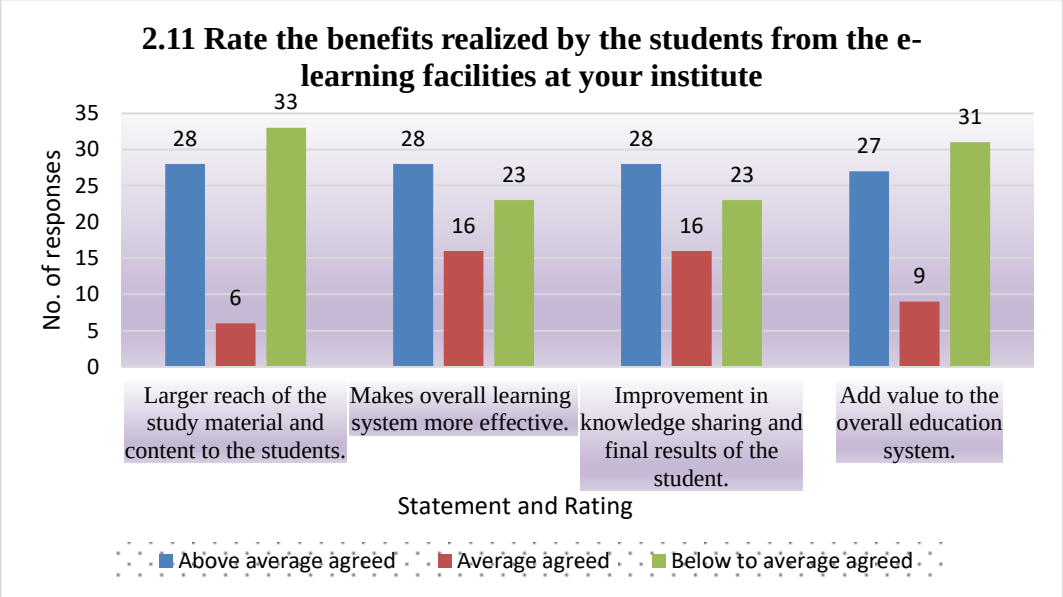

Figure 5.1.2.11Rating of benefits realized by the students from the E-learning facilities at the institute

5.1.2.12(A) Rating of available E-learning resources (e-lectures) at the Institute for meeting curriculum requirements and student needs

Table 5.5 represents the rating by the teachers/experts/professionals of available E-learning resources (e-lectures) at the Institute for meeting curriculum requirements and student needs. Respondents (the teachers/experts/professionals) were asked to rate the different E-learning resources at the institute in preference format from preference 1 to 5. Responses in the table have been analyzed into Above average agreed (Ranked 1 and 2), Average agreed (Ranked 3) and Below to Average agreed (Ranked 4 and 5) options.

e-Lectures: It has been Above average agreed (Ranked 1 and 2) by 32, Average agreed (Ranked 3) by 13 and Below to Average agreed (Ranked 4 and 5) by 22 respondents.

e-Journals: It has been Above average agreed (Ranked 1 and 2) by 28, Average agreed (Ranked 3) by 9 and Below to Average agreed (Ranked 4 and 5) by 28 respondents.

e-book: It has been Above average agreed (Ranked 1 and 2) by 29, Average agreed (Ranked 3) by 8 and Below to Average agreed (Ranked 4 and 5) by 30 respondents.

e-examination material: It has been Above average agreed (Ranked 1 and 2) by 35, Average agreed (Ranked 3) by 11 and Below to Average agreed (Ranked 4 and 5) by 21 respondents.

e-Group Discussions: It has been Above average agreed (Ranked 1 and 2) by 34, Average agreed (Ranked 3) by 16 and Below to Average agreed (Ranked 4 and 5) by 17 respondents.

e-Presentations: It has been Above average agreed (Ranked 1 and 2) by 31, Average agreed (Ranked 3) by 16 and Below to Average agreed (Ranked 4 and 5) by 20 respondents.

Library/ Department Websites: It has been Above average agreed (Ranked 1 and 2) by 27, Average agreed (Ranked 3) by 12 and Below to Average agreed (Ranked 4 and 5) by 28 respondents.

Table 5.5 Rating of available E-learning resources (e-lectures) at the Institute for meeting curriculum requirements and student needs

(A) Rate the following E-learning resources available at your institute in terms of meeting the curriculum requirement and student needs. [e-Lectures]	Above-average agreed	Average agreed	Below to average agreed
	(Ranked 1 & 2)	(Ranked 3)	(Ranked 4 & 5)
e-Lectures	32	13	22
e-Journals	28	9	30
e-book	29	8	30
e-examination material	35	11	21
e-Group Discussions	34	16	17
e-Presentations	31	16	20
Library/ Department Websites	27	12	28

Thus e-examination material proved to be the most highly rated E-learning resource which is available at the institute and meets requirement of the curriculum and varying needs of the students, as recommended by the teachers/experts/professionals. E-group discussions are the second and so on. Figure 5.1.2.12(A) represents the graphical plot for the same.

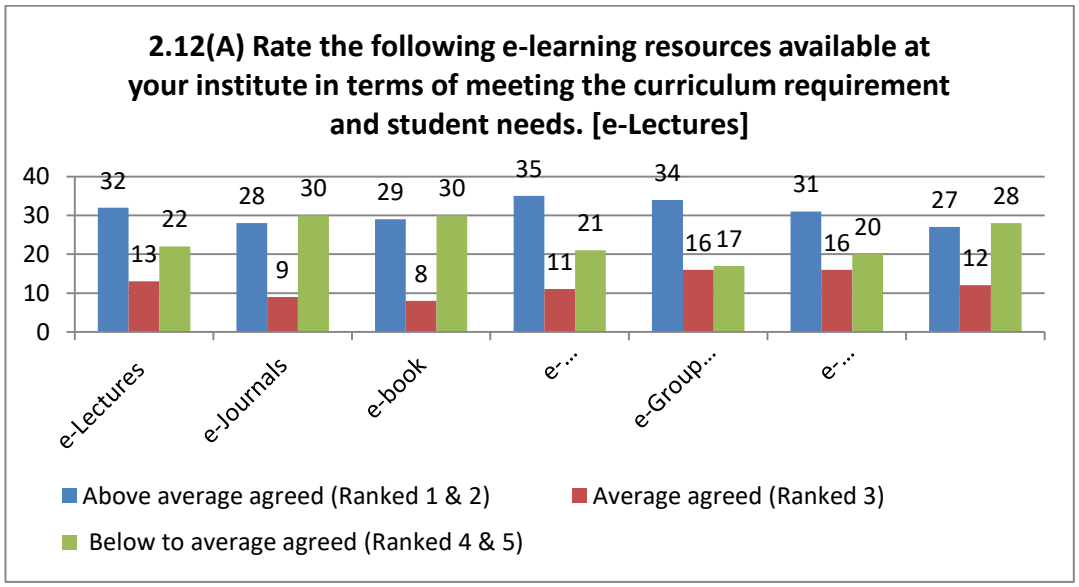

Figure 5.1.2.12(A) Rating of available E-learning resources (e-lectures) at the Institute for meeting curriculum requirements and student needs

5.1.2.12(B) Where have you found these E-learning resources?

The query 5.1.2.12(B) as described in table 5.6 asks the teachers/experts/professionals about the location of various E-learning resources used. The responses for various E-learning resources along with their most probably found location are enumerated below:

e-Lectures: Most found location is the Institute Website with 43.28% of responses.

e-Journals: Most found location is the Library Website with 62.69% of responses.

e-book: Most found location is the Library Website with 55.22% of responses.

e-examination material: Most found location is the Institute Website with 40.30% of responses.

e-Group Discussions: Most found location is the Institute Website with 28.36% of responses.

e-Presentations: Most found location is Downloads with 34.33% of responses.

Table 5.6 Location of availability of different E-learning resources

(B) Where have you found these E-learning resources	**Number of Responses and % (Location of these resources) (Opted from 67 respondents)**						
E-learning Resources	**Institute Website**	**Library Website**	**LMS**	**Resources**	**Archive**	**Downloads**	**Any Other**
e-Lectures	29 (43.28%)	16 (23.88%)	13 (19.40%)	21 (31.34%)	5 (7.46%)	23 (34.33%)	9 (13.43%)
e-Journals	16 (23.88%)	42 (62.69%)	8 (11.94%)	21 (31.34%)	10 (14.93%)	20 (29.85%)	5 (7.46%)
e-book	15 (22.39%)	37 (55.22%)	9 (13.43%)	22 (32.84%)	13 (19.40%)	19 (28.36%)	8 (11.94%)
e-examination material	27 (40.30%)	12 (17.91%)	13 (19.40%)	10 (14.93%)	7 (10.45%)	19 (28.36%)	12 (17.91%)
e-Group Discussions	19 (28.36%)	8 (11.94%)	14 (20.90%)	15 (22.39%)	6 (8.96%)	11 (16.42%)	16 (23.88%)
e-Presentations	22 (32.84%)	17 (25.37%)	17 (25.37%)	15 (22.39%)	10 (14.93%)	23 (34.33%)	12 (17.91%)

5.1.3 General Attitude of LIS Teachers/Experts towards E-learning for LIS in India

In this part, we have tried to perceive what is the overall outlook and orientation of the teachers or professionals of the Library and Information Science sector towards the various aspects of E-learning in India. The diverse questions put forward in this section helped us to know about the varying credentials, obstacles, issues and other prospects of E-learning faced by the LIS teachers/experts/professionals. This part of the questionnaire consisted of 11 sections having 44 options which have been enumerated as tables and figures below, and helped us to understand the attitude of students/ learners regarding E-learning in LIS in India. A Likert scale (five-point)was used to measure agreement or disagreement in the related options. In addition, 3 more sections without options were there which signified the suggestions and miscellaneous points of the LIS students/ learners

5.1.3.1 General attitude of teachers/experts/professionals towards handling/operating the E-learning tools and technologies.

Table 5.7 predicts the general attitude of teachers/experts/professionals towards handling/operating the E-learning tools and technologies. To analyze the responses, the data has been gathered into three groups:

First for agreement (CA) including Strongly Agree (SA) and Agree (AG) options,

Second for disagreement (CD) which includes Disagree (DA) and Strongly Disagree (SD) options and

Third for the neutral (NE) option.

The question is divided into four statements 3.1.1, 3.1.2, 3.1.3 and 3.1.4 to assess the attitude of the respondent towards handling/operating the E-learning tools and technologies.

The statement 3.1.1 “I feel confident while using the E-learning tools and technologies in teaching” has 92.54% (67) respondents in favour of the agreement, which justifies that the majority of the teachers/experts/professionals can confidently use the E-learning tools and technologies. None of them disagree with the statement, while 7.46% (5) were neutral about using the E-learning tools and techniques.

The statement 3.1.2 i.e., “Supporting users/students electronically is not very difficult” has 77.61% of respondents in agreement reflecting simplicity in helping the users and students using E-learning, 2.99% in disagreement showing difficulty in helping through E-learning while 19.40% were neutral.

Whereas, in the statement at 3.1.3 i.e., “I have faced problems delivering and sharing resources to users/students electronically” 43.29% of respondents were in agreement having faced problems in delivering and sharing electronic resources to students and users, 29.85% in disagreement of facing any problem while 26.87% were neutral regarding electronic sharing or delivering.

For the next statement 3.1.4 i.e., “I can usually solve the problems on my own while handling /operating E-learning tools and technologies” 67.17% of responses were in agreement with this statement, only 5.97% were of disagreement while 26.87% were neutral, showing that majority of teachers/experts/professionals can themselves handle and solve problems while operating E-learning tools and technologies.

Figure 5.1.3.1 shows the graphical representation of the same.

Table 5.7 General attitude towards handling/operating the E-learning tools and technologies

(Total Resp. = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.1.1	I feel confident while using the E-learning tools and technologies in teaching	0	0	5	30	32
		0.00 %	0.00%	**7.46%**	44.78%	47.76%
		CD = 00.00%			**CA = 92.54%**	
3.1.2	Supporting users/students electronically is not very difficult	2	0	13	28	24
		2.99 %	0.00%	**19.40%**	41.79%	35.82%
		CD = 2.99%			**CA = 77.61%**	
3.1.3	I have faced problems delivering and sharing resources to users/students electronically	4	16	18	19	10
		5.97 %	23.88%	**26.87%**	28.36%	14.93%
		CD = 29.85%			**CA = 43.29%**	
3.1.4	I can usually solve the problems on my own while handling /operating E-learning tools and technologies	1	3	18	30	15
		1.49 %	4.48%	**26.87%**	44.78%	22.39%
		CD = 5.97%			**CA = 67.17%**	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement

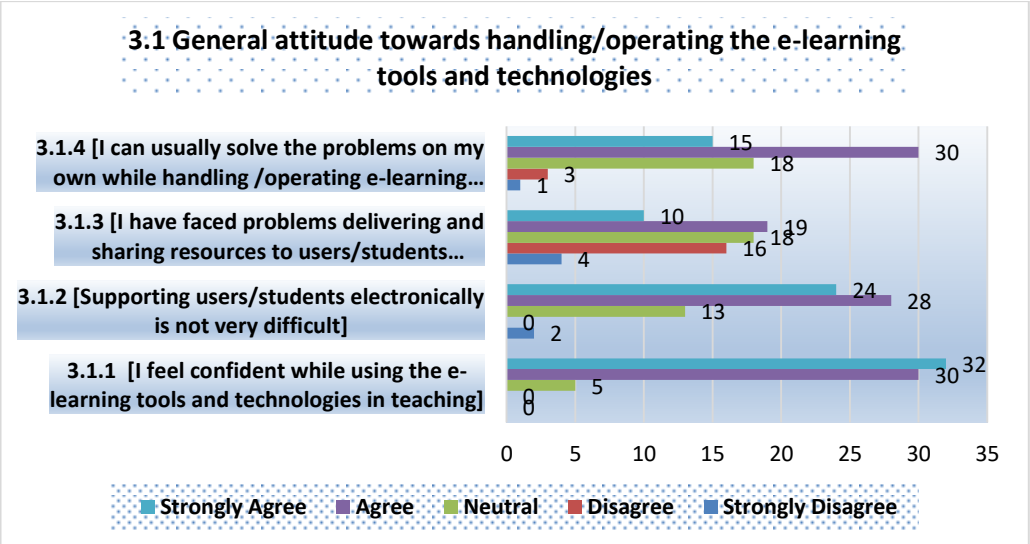

Figure 5.1.3.1General attitude of teachers/experts/professionals towards handling/operating the E-learning tools and technologies.

5.1.3.2 General attitude of teachers/experts/professionals towards the effectiveness of E-learning pedagogy

Table 5.8 represents the general attitude of teachers/experts/professionals towards the effectiveness of E-learning pedagogy in the LIS sector. Responses in the table have been analyzed into: agreement (CA = AG+SA), disagreement (CD = SD+DA) and the neutral (NE) options.

The four statements 3.2.1, 3.2.2, 3.2.3 and 3.2.4 determine the view of respondents towards the effectiveness and quality of E-learning pedagogy in the LIS sector as follows:

The statement 3.2.1 "E-learning makes it more interesting than the printed books due to animation, videos, digital effects, sounds, etc." has 82.09% (55) respondents in agreement, which means a greater number of learners find E-learning with animation, videos, digital effects, sounds, etc interesting. Only a small number around 2.99% (2) disagrees with the statement and didn't find E-learning more interesting than the printed books, while 14.93% (10) were neutral with both situations.

The statement 3.2.2 i.e., "E-learning helps in teaching at my own pace and it is more important than traditional learning" has 89.67% of respondents in agreement and 1.34% in disagreement while 9.00% were neutral, showing that E-learning is highly appropriate to teach at a pace that is convenient to the teacher.

In the statement 3.2.3 which states, "E-learning is a quick and efficient way to explore a topic of interest in the study" 82.67% of respondents agreed, only 4.00% disagreed while 13.33% were neutral depicting that E-learning is surely a fast and fruitful method for searching any topic of relevance in the study.

However, their response to next statement 3.2.4 i.e., "With the help of E-learning I am able to manage my teaching work efficiently" has 76.66% of respondents in agreement revealing that E-learning helps in the efficient management of teaching, 2.00% who are in disagreement, while 21.33% were neutral about the help of E-learning in efficient teaching.

Figure 5.1.3.2 shows the graphical representation of these statements.

Table – 5.8 General Attitude towards effectiveness of E-learning pedagogy

(Total Resp. = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.2.1	E-learning makes it more interesting than printed books due to animation, videos, digital effects, sounds, etc.	2	0	10	33	22
		2.99%	0.00%	**14.93 %**	49.25%	32.84%
		CD = 2.99%			**CA = 82.09%**	
3.2.2	E-learning helps in teaching at my own pace and it is more important than traditional learning	1	6	13	30	17
		1.49%	8.96%	**19.40 %**	44.78%	25.37%
		CD = 10.45%			**CA** = 70.15%	
3.2.3	E-learning is a quick and efficient way to explore a topic of interest in the study	1	2	9	36	19
		1.49%	2.99%	**13.43 %**	53.73%	28.36%
		CD = 4.48%			**CA = 82.09%**	
3.2.4	With the help of E-learning, I am able to manage my teaching work efficiently	0	2	21	28	16
		0.00%	2.99%	**31.34 %**	41.79%	23.88%
		CD = 2.99%			**CA = 65.67%**	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement

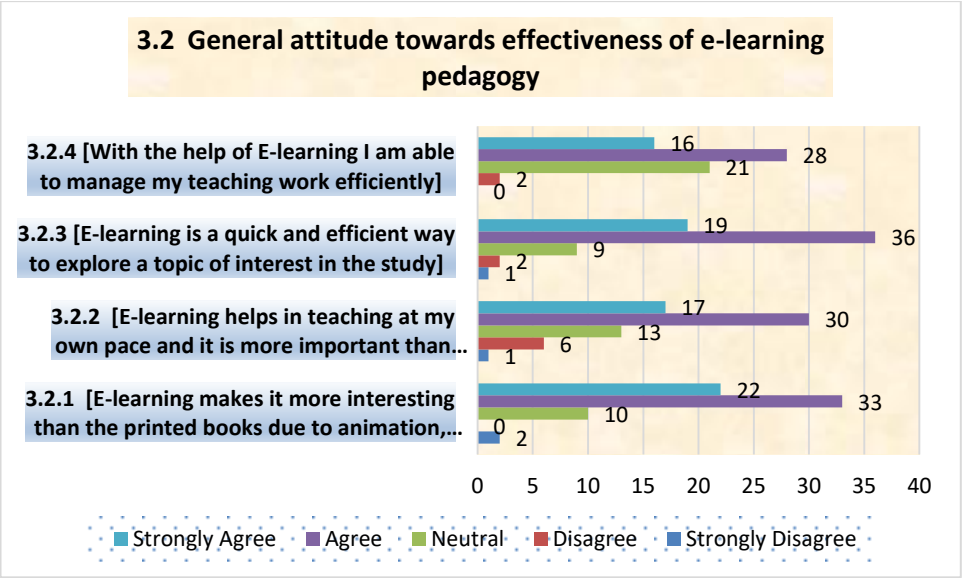

Figure 5.1.3.2General attitude of teachers/experts/professionals toward the effectiveness of E-learning pedagogy

5.1.3.3 General attitude of teachers/experts/professionals towards searching and accessing E-learning content

Table 5.9 represents the general attitude of teachers/experts/professionals towards searching and accessing the E-learning content in LIS. Responses in the table have been analyzed into agreement (CA = AG+SA), disagreement (CD = SD+DA) and neutral (NE) options.

The query has been subdivided into four statements 3.2.1, 3.2.2, 3.2.3 and 3.2.4 to determine the view of the respondents towards searching and accessing the E-learning contents in LIS.

The statement 3.3.1 "E-learning portals/websites offer easy navigation and searching for the digital content" has 83.58% (56) respondents in favour of the agreement, which clears that majority of the teachers/experts/professionals find E-learning portals/websites easier to use for searching the digital content. Only a small number, 4.48% (3) disagrees with the statement and found E-learning portals/websites not so easy for searching the digital content, while 11.94% (8) were neutral on this aspect.

The statement 3.3.2 i.e., "Teaching with the help of E-learning tools and technologies is an interesting experience" has 83.58% of respondents in agreement

and 1.49% in disagreement while 14.93% were neutral, showing that teaching through E-learning tools and technologies are far more captivating.

Whereas, in the statement at 3.3.3 i.e., "I can upload the digital objects (such as videos, pictures and sound) on a LIS portals/ website/ E-learning portal" 85.07% of respondents agreed about uploading contents such as videos, pictures and sound on LIS portals/ websites/ E-learning portals, only 1.49% in total disagreed while 13.43% were neutral.

However, their response to next statement 3.3.4 i.e., "I can access information and be in touch with the students and peers anytime, anywhere." shows that the respondents were free to get in touch with or to assess any required information as per their convenient time and location for 88.06% respondents who are in agreement, not for 1.49% who are in disagreement and not affected for 10.45% who are neutral.

Figure 5.1.3.3 shows the graphical representation of the same.

Table 5.9 General Attitude towards searching and accessing E-learning content

(Total Resp. = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.3.1	E-learning portals/websites offer easy navigation and searching for the digital content	1	2	8	31	25
		1.49%	2.99%	**11.94 %**	46.27%	37.31%
		CD = 4.48%			**CA = 83.58%**	
3.3.2	Teaching with the help of E-learning tools and technologies is an interesting experience	1	0	10	33	23
		1.49%	0.00%	**14.93 %**	49.25%	34.33%
		CD = 1.49%			**CA = 83.58%**	
3.3.3	I can upload the digital objects (such as videos, pictures and sound) on a LIS portals/ website/ E-learning portal	1	0	9	32	25
		1.49%	0.00%	**13.43 %**	47.76%	37.31%
		CD = 1.49%			**CA = 85.07%**	
3.3.4	I can access information and be in touch with the students and peers anytime, anywhere.	1	0	7	33	26
		1.49%	0.00%	**10.45 %**	49.25%	38.81%
		CD = 1.49%			**CA = 88.06%**	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement

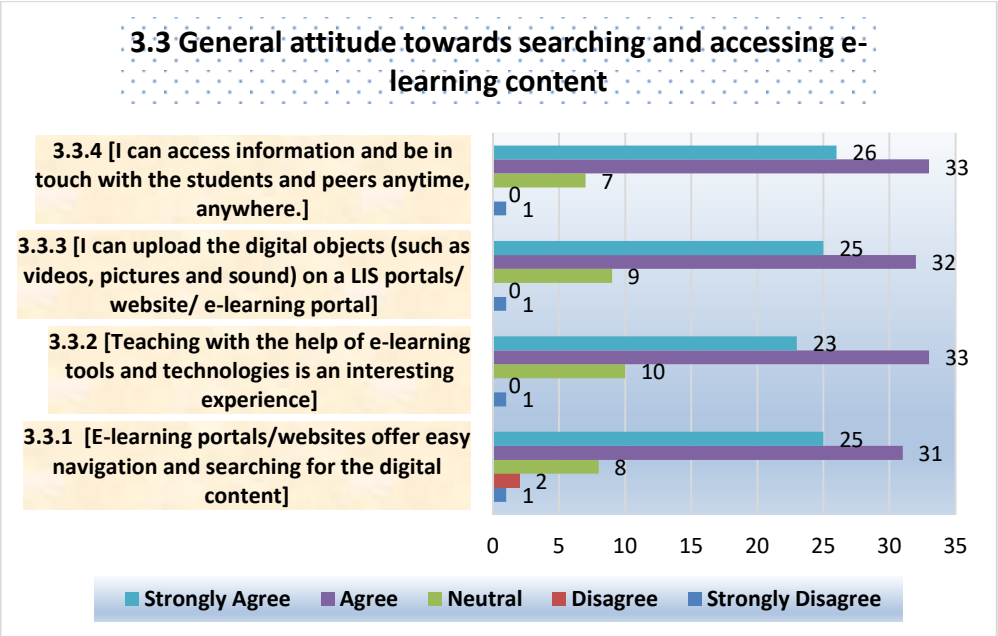

Figure 5.1.3.3General attitude of teachers/experts/professionals towards searching and accessing E-learning content

5.1.3.4 General attitude of teachers/experts/professionals towards curriculum design for E-learning

Table 5.10 predicts the general attitude of teachers/experts/professionals towards designing of curriculum for E-learning. To analyze the responses, the data has been gathered into: agreement (CA = SA+AG) options, disagreement (CD = DA+SD) options and the neutral (NE) option.

The question is divided into four statements 3.4.1, 3.4.2, 3.4.3 and 3.4.4 to assess the attitude of the respondent towards designing of curriculum for E-learning.

The statement 3.4.1 "The curriculum should be designed by integrating online courses" has almost 89.55% (60) respondents in agreement, predicting that online courses must necessarily be included in the curriculum. None of them disagrees with the statement, while 10.45% (7) were neutral about this point.

The statement 3.4.2 i.e., "Lack of proper dynamic course curriculum for conducting online mode" has 76.12% of respondents in agreement reflecting that presently there is a deficiency of appropriate curriculum for online conduction of the course, 4.48% in disagreement indicating the presence of proper curriculum while 19.40% were neutral.

Whereas, in the statement at 3.4.3 i.e., "E-learning system is not adopted in LIS Curriculum in LIS schools of the country" 46.27% of respondents were in agreement about such issue that still E-learning has not been included in LIS curriculum in many LIS schools in India, 20.90% in disagreement while 32.84% were neutral about the issue.

For the next statement 3.4.4 i.e., "University /Institute provides special curriculum tasks to support the use of online learning/E-learning in LIS" 67.16% of respondents were in agreement with the statement that their University/Institute is providing such chores to support the use of E-learning in LIS, only 8.96% were of disagreement while 23.88% were neutral for this statement.

Figure 5.1.3.4 shows the graphical representation of the same.

Table 5.10 General attitude towards curriculum design for E-learning

(Total Responses = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.4.1	The curriculum should be designed by integrating online courses	0	0	7	39	21
		0.00%	0.00%	**10.45 %**	58.21%	31.34%
		CD = 0.00%			**CA = 89.55%**	
3.4.2	Lack of proper dynamic course curriculum for conducting online mode	0	3	13	36	15
		0.00%	4.48%	**19.40 %**	53.73%	22.39%
		CD = 4.48%			**CA = 76.12%**	
3.4.3	E-learning system is not adopted in LIS Curriculum in LIS schools of the country	3	11	22	25	6
		4.48%	16.42%	**32.84 %**	37.31%	8.96%
		CD = 20.90%			**CA = 46.27%**	
3.4.4	University /Institute provides special curriculum tasks to support the use of online learning/E-learning in LIS	2	4	16	28	17
		2.99%	5.97%	**23.88 %**	41.79%	25.37%
		CD = 8.96%			**CA = 67.16%**	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement

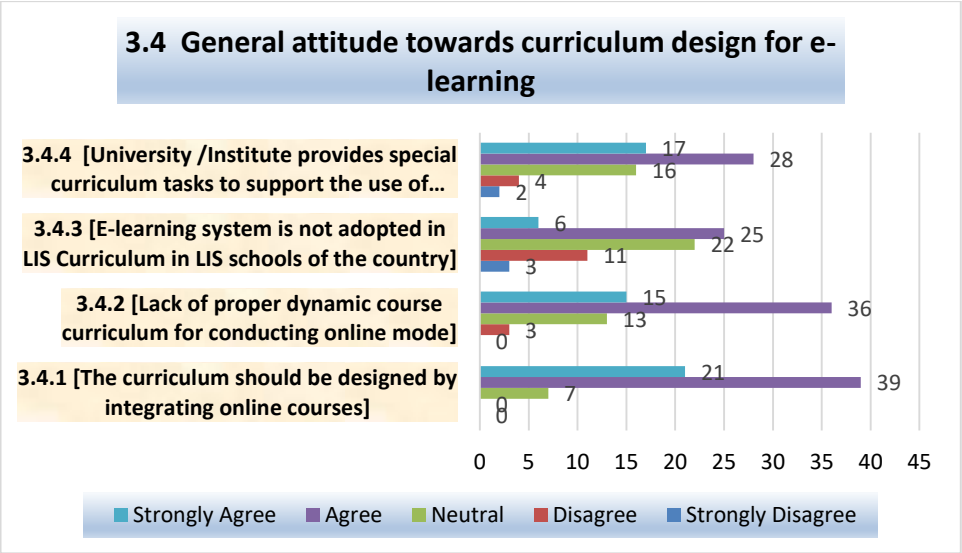

Figure 5.1.3.4General attitude of teachers/experts/professionals towards curriculum design for E-learning

5.1.3.5 General attitude of teachers/experts/professionals towards the importance and need of E-learning

Table 5.11 represents the general attitude of teachers/experts/professionals towards the relevance and necessity of E-learning. Responses in the table have been analyzed into: agreement (CA = AG+SA), disagreement (CD = SD+DA) and the neutral (NE) options.

The statement 3.5.1 "By using E-learning techniques the advanced knowledge can be provided to the LIS students/users" has 83.59% (56) respondents in favour of the statement, which means that most teachers/experts/professionals consider that E-learning, conveys advanced knowledge to the LIS students/users. None disagree with this fact while 16.42% (11) were neutral in this regard.

The statement 3.5.2 i.e., "The E-learning is more advantageous for better academic achievement than traditional learning" has 68.66% of respondents in agreement that enhanced academic results can be obtained with E-learning as compared to the traditional ones, and only 17.91% were in disagreement and feels traditional learning better while 13.43% were neutral about the statement.

In statement 3.5.3 which states, "The use of E-learning provides richer educational experiences than traditional learning" 70.15% of respondents agreed for a better academic experience with E-learning as compared to the traditional one,17.91% didn't feel so and disagreed, while 11.94% remained neutral.

However, their response to the next statement 3.5.4 i.e., "E-learning is more feasible, cost and time effective" has 80.60% of respondents in agreement revealing that online learning is advantageous in terms of accessibility, monetary and time issues, only 2.99% were in disagreement, while 16.42% were neutral.

Figure 5.1.3.5 shows the graphical representation of these statements.

Table 5.11 General attitude of teachers/experts/professionals towards the importance and need of E-learning

(Total Resp. = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.5.1	By using E-learning techniques the advanced knowledge can be provided to the LIS students/users	0	0	11	34	22
		0.00%	0.00%	16.42 %	50.75%	32.84 %
		CD = 0.00%			**CA = 83.59%**	
3.5.2	E-learning is more advantageous for better academic achievement than traditional learning	4	8	9	27	19
		5.97%	11.94 %	13.43 %	40.30%	28.36 %
		CD = 17.91%			**CA = 68.66%**	
3.5.3	The use of E-learning provides richer educational experiences than traditional learning	4	8	8	30	17
		5.97%	11.94 %	11.94 %	44.78%	25.37 %
		CD = 17.91%			**CA = 70.15%**	
3.5.4	E-learning is more feasible, cost and time effective	0	2	11	34	20
		0.00%	2.99%	16.42 %	50.75%	29.85 %
		CD = 2.99%			**CA = 80.60%**	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement

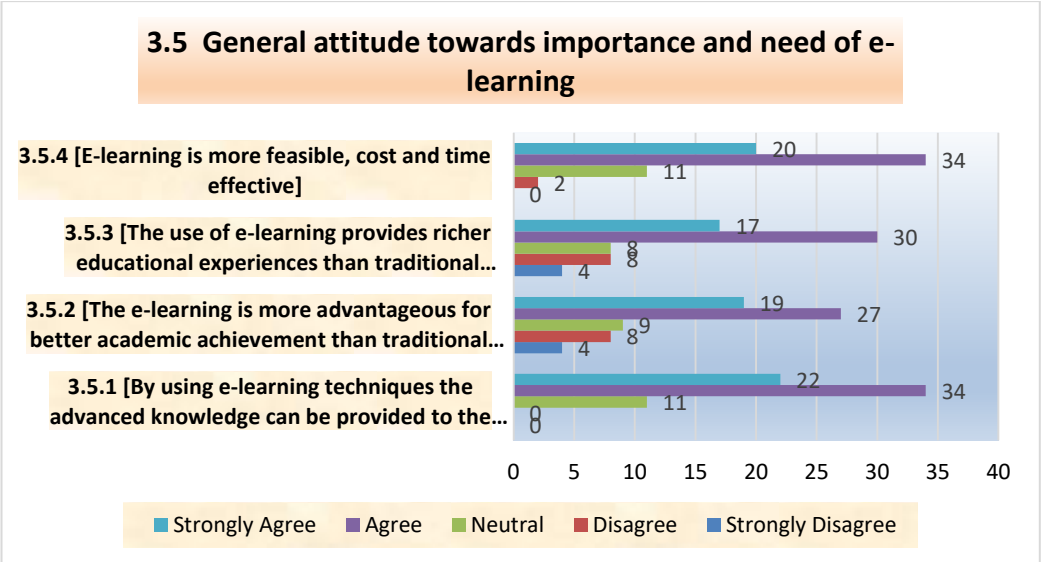

Figure 5.1.3.5General attitude of teachers/experts/professionals towards the importance and need of E-learning

5.1.3.6 General attitude of teachers/experts/professionals towards different methods of E-learning

Table 5.12 predicts the general attitude of teachers/experts/professionals towards different methods of E-learning. To analyze the responses, the data has been gathered into: agreement (CA = SA+AG) options, disagreement (CD = DA+SD) options and the neutral (NE) option.

The question is divided into four statements 3.6.1, 3.6.2, 3.6.3 and 3.6.4 to assess the attitude of the respondent toward different methods of E-learning.

The statement 3.6.1 "E-learning courses have the ability to replace offline lecturers" has 47.76% (32) respondents in agreement, predicting that most teachers/experts/ professionals have thinking that E-learning courses will supersede and will take place of the present-day offline teaching. Only a small number of 44.77% (30) disagrees with the statement and do not think so, while 7.46% (5) were neutral in any prediction.

The statement 3.6.2 i.e., "I use online discussion forums or Mailing lists" has 64.18% of respondents in agreement reflecting that they use the online discussion forms or mailing lists, 11.94% in disagreement about using them while 23.88% were neutral.

Whereas, in the statement at 3.6.3 i.e., "Synchronized E-learning gives opportunity to serve users/students better" 71.65% of respondents were in agreement that direct and synchronized online learning provides improved chances for outmatched serving to the users, 2.99% in disagreement while 25.37% were neutral about the issue.

For the next statement 3.6.4 i.e., "Asynchronized E-learning offers limited scope for interactions" 52.24% of respondents were in agreement with this statement and feel a lack of interaction with the students/users, only 11.95% were in disagreement while 35.82% were neutral for this statement.

Figure 5.1.3.6 shows the graphical representation of the same.

Table 5.12 General attitude of teachers/experts/professionals towards different methods of E-learning

(Total Resp. = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.6.1	E-learning courses have the ability to replace offline lecturers	9	21	5	20	12
		13.43%	31.34%	7.46 %	29.85%	17.91%
		CD = 44.77%			**CA** = 47.76%	
3.6.2	I use online discussion forums or Mailing lists	1	7	16	32	11
		1.49%	10.45%	23.88 %	47.76%	16.42%
		CD = 11.94%			**CA** = 64.18%	
3.6.3	Synchronized E-learning gives opportunity to serve users/students better	0	2	17	34	14
		0.00%	2.99%	25.37 %	50.75%	20.90%
		CD = 2.99%			**CA** = 71.65%	
3.6.4	Asynchronized E-learning offers limited scope for interactions	2	6	24	24	11
		2.99%	8.96%	35.82 %	35.82%	16.42%
		CD = 11.95%			**CA** = 52.24%	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement

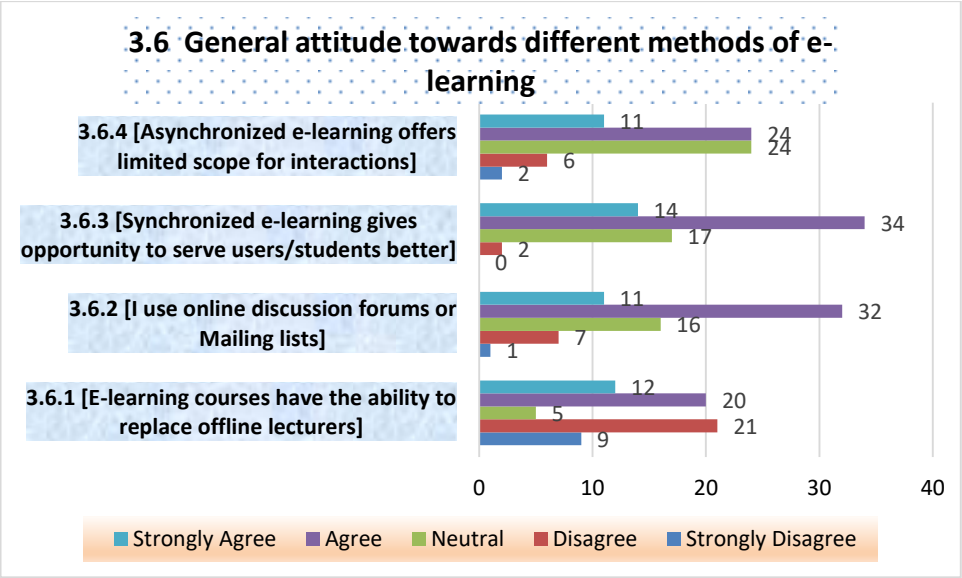

Figure 5.1.3.6General attitude of teachers/experts/professionals towards different methods of E-learning

5.1.3.7 General attitude of teachers/experts/professionals towards glitches in acceptance of E-learning

Table 5.13 represents the general attitude of teachers/experts/professionals towards glitches in the acceptance of E-learning in the LIS sector. Responses in the table have been analyzed into: agreement (CA = AG+SA), disagreement (CD = SD+DA) and the neutral (NE) options.

The query has been subdivided into four statements 3.7.1, 3.7.2, 3.7.3 and 3.7.4 to determine the view of the respondents.

The statement 3.7.1 “Internet cost is a problem in teaching through E-learning mode” has 70.15% (47) respondents in favour of the agreement, that internet is necessary and it might not be feasible to many due to its cost, posing an issue. Only a small number of 16.42% (11) disagreed with the statement, while 13.43% (9) were neutral about the cost.

The statement 3.7.2 i.e., “High cost of computer devices poses a problem in teaching through E-learning mode” has 68.66% of respondents in agreement accepting that the computer and laptop devices are costly and can also pose issues in E-learning,

13.43% in disagreement about the high cost of devices and think that most users can afford it, while 17.91% were neutral about this point.

In the statement, 3.7.3 i.e., "Creating and maintaining E-learning portals/ Learning Management Systems (LMS) interface is a very difficult task" 52.24% of respondents agreed that first the development and then the maintenance of LMS and other portals for E-learning is a tedious task and so poses an issue in E-learning, only 20.90% disagreed while 26.87% were neutral.

The response to the next statement 3.7.4 i.e., "The online available courses/SLMs were open 24×7, allowing me to teach when it was convenient for me" 76.12% in agreement, on the other hand, 7.46% who are in disagreement don't think so and 16.42% are neutral about any such point.

Figure 5.1.3.7 shows the graphical representation of the same.

Table 5.13 General attitude of teachers/experts/professionals towards glitches in acceptance of E-learning

(Total Resp. = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.7.1	Internet cost is a problem in teaching through the E-learning mode	1	10	9	34	13
		1.49%	14.93%	13.43%	50.75%	19.40%
		CD = 16.42%			**CA** = 70.15%	
3.7.2	The high cost of computer devices poses a problem in teaching through the E-learning mode	0	9	12	27	19
		0.00%	13.43%	17.91%	40.30%	28.36%
		CD = 13.43%			**CA** = 68.66%	
3.7.3	Creating and maintaining E-learning portals/ Learning Management Systems (LMS) interface is a very difficult task	2	12	18	23	12
		2.99%	17.91%	26.87%	34.33%	17.91%
		CD =20.90%			**CA** = 52.24%	
3.7.4	The online available courses/SLMs were open 24×7, allowing me to teach when it was convenient for me	1	4	11	30	21
		1.49%	5.97%	16.42%	44.78%	31.34%
		CD = 7.46%			**CA** = 76.12%	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement

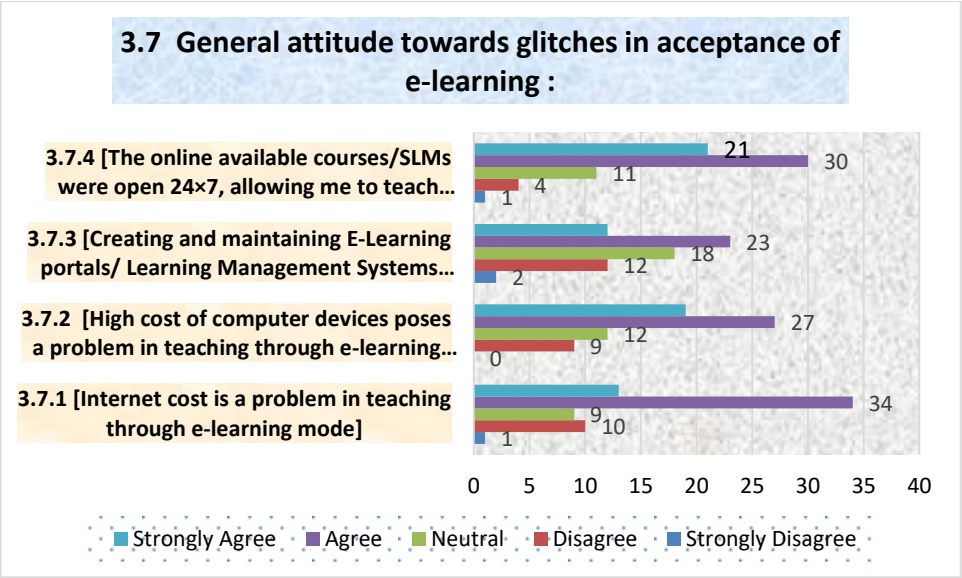

Figure 5.1.3.7General attitude of teachers/experts/professionals towards glitches in acceptance of E-learning

5.1.3.8 General attitude of teachers/experts/professionals towards evaluation and assessment of E-learning

Table 5.14 represents the general attitude of teachers/experts/professionals towards the evaluation and assessment of E-learning. Responses in the table have been analyzed into: agreement (CA = AG+SA), disagreement (CD = SD+DA) and the neutral (NE) options.

The statement 3.8.1 "Online Practice exam, Webinars and Live lectures are provided to the students." has 85.08% (57) respondents in favour of the statement, which means that most of the teachers have provided timely evaluation and assessment materials which is an encouraging step in the E-learning courses. Only a small number around 2.99% (2) disagreed with the statement and didn't take timely evaluation/assessment, while 11.94% (8) were neutral with regards to evaluation/assessment.

The statement 3.8.2 i.e., "There are poor post-evaluation mechanisms for E-learning like Feedback mechanisms, checking assignments and attending users queries" has 67.17% of respondents in agreement that the events after evaluations viz. feedbacks, checking of assignments and responding to the queries are not

adequate, only 13.43% were in disagreement who felt that there is adequate post-evaluation proceeding while 19.40% were neutral about these.

In the statement 3.8.3 which states, "Some external support is needed to upgrade and maintain the E-learning system" 80.59% of respondents agreed with the requirement of additional support for updating as well as maintaining the system,1.49% didn't think so and disagreed, while 17.91% remained neutral.

However, their response to next statement 3.8.4 i.e., "Lack of clarity of evaluation methods used in the course" has 61.20% of respondents in agreement revealing that they were not clear about the evaluation methods employed, 10.45% who are in disagreement were aware, while 28.36% were neutral, not having any issue about the evaluation methods used.

Figure 5.1.3.8 shows the graphical representation of these statements.

Table 5.14 General attitude of teachers/experts/professionals towards evaluation and assessment of E-learning

(Total Resp. = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.8.1	Online Practice exams, Webinars and Live lectures are provided to the students.	0	2	8	35	22
		0.00%	2.99%	11.94 %	52.24 %	32.84 %
		CD = 2.99%			**CA** = 85.08%	
3.8.2	There are poor post-evaluation mechanisms for E-learning like Feedback mechanisms, checking assignments and attending to users' queries	1	8	13	34	11
		1.49%	11.94%	19.40 %	50.75 %	16.42 %
		CD = 13.43%			**CA** = 67.17%	
3.8.3	Some external support is needed to upgrade and maintain the E-learning system	0	1	12	37	17
		0.00%	1.49%	17.91 %	55.22 %	25.37 %
		CD = 1.49%			**CA** = 80.59%	
3.8.4	Lack of clarity of evaluation methods used in the course	1	6	19	30	11
		1.49%	8.96%	28.36 %	44.78 %	16.42 %
		CD = 10.45%			**CA** = 61.20%	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement

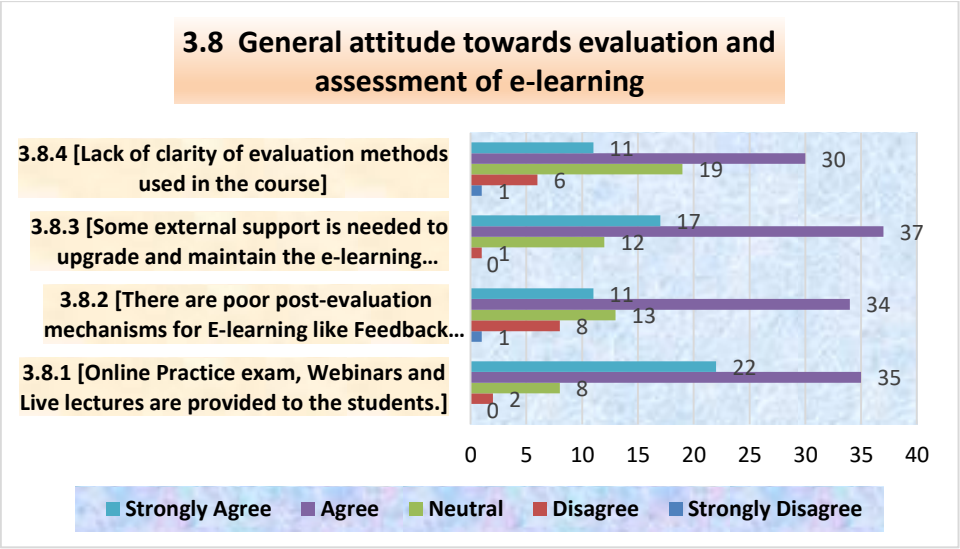

Figure 5.1.3.8General attitude of teachers/experts/professionals towards evaluation and assessment of E-learning

5.1.3.9 General attitude of teachers/experts/professionals towards management and financial challenges of E-learning

Table 5.15 represents the general attitude of teachers/experts/professionals towards the management and financial challenges of E-learning. Responses in the table have been analyzed into: agreement (CA = AG+SA), disagreement (CD = SD+DA) and the neutral (NE) options.

The statement 3.9.1 "E-learning programs have lack of proper managerial support." has 71.65% (48) respondents in favour of the statement, that most of the E-learning programs running presently do not have adequate managerial backhand. Only a small number around 11.94% (8) disagreed with the statement, while 16.42% (11) were neutral about the managerial support of E-learning programs.

Statement 3.9.2 i.e., "Proper budget is required for improving E-learning facilities by the institute." has 85.07% of respondents in agreement that an adequate budget is a major and promising factor for the development of new E-learning facilities, only 1.49% were in disagreement while 13.43% were neutral about the budgetary requirement.

In statement 3.9.3, which states "There is a lack of funding and sponsorship opportunities for E-learning." 77.61% of respondents felt for the actual shortage in

funding as well as sponsorship for E-learning, 1.49% do not believe so and disagreed, while 20.90% remained neutral.

However, their response to next statement 3.9.4 i.e., "Traditional mindset of learning is discouraging E-learning system in LIS." has 55.23% of respondents in agreement revealing that conventional and ongoing learning setup in the mind is hindering the progress of E-learning in LIS, 16.42% who are in disagreement do not think so, while 28.36% were neutral.

Figure 5.1.3.9 shows the graphical representation of these statements.

Table 5.15 General attitude of teachers/experts/professionals towards management and financial challenges of E-learning

(Total Resp. = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.9.1	E-learning programs have lack of proper managerial support	1	7	11	30	18
		1.49%	10.45 %	16.42%	44.78%	26.87%
		CD = 11.94%			**CA** = 71.65%	
3.9.2	A proper budget is required for improving E-learning facilities by the institute.	0	1	9	33	24
		0.00%	1.49%	13.43%	49.25%	35.82%
		CD = 1.49%			**CA** = 85.07%	
3.9.3	There is a lack of funding and sponsorship opportunities for E-learning.	0	1	14	31	21
		0.00%	1.49%	20.90%	46.27%	31.34%
		CD = 1.49%			CA = 77.61%	
3.9.4	The traditional mindset of learning is discouraging the E-learning system in LIS.	3	8	19	23	14
		4.48%	11.94 %	28.36%	34.33%	20.90%
		CD = 16.42%			CA = 55.23%	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement.

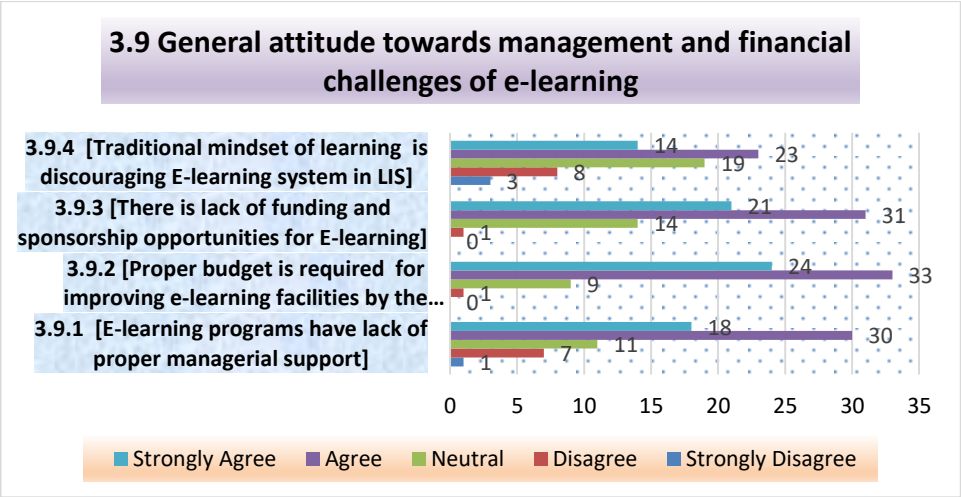

Figure 5.1.3.9General attitude of teachers/experts/professionals towards management and financial challenges of E-learning

5.1.3.10 Attitude of teachers/experts/professionals towards integration of e-resources with the Learning Management System

Table 5.16 predicts the general attitude of teachers/experts/professionals towards the integration of e-resources with the Learning Management System. To analyze the responses, the data has been gathered into: agreement (CA = SA+AG) option, disagreement (CD = DA+SD) option and the neutral (NE) option.

The question is divided into four statements 3.10.1, 3.10.2, 3.10.3 and 3.10.4 to assess attitude of the respondents toward integration of e-resources into the Learning Management System.

The statement 3.10.1 "The OPAC needs to be integrated with the course on Learning Management System so that library staff/teachers can upload/edit/create library collection directly through the LMS itself." has 88.06% (59) respondents in agreement, clearly indicating the need of integration of online library facility with the LMS. No one disagreed with the statement, while 11.94% (8) were neutral about integration.

The statement 3.10.2 i.e., "Resources from online databases/resources must be integrated with the course on the Learning Management System." has 92.54% of respondents in agreement reflecting the necessity of availability of online databases/resources on the LMS along with the course so that it is easy to navigate through the vast knowledge available online for better understanding, no one in disagreement, while 7.46% were neutral.

Whereas, in the statement at 3.10.3 i.e., "Discovery search must be available integrating class resources, library resources, databases and e-resources so that teachers can find the information and resources on a single click from the LMS itself." 86.57% of respondents were in agreement, 0.00% in disagreement while 13.43% were neutral, specifying that multiple search options are much needed for the teachers/professionals too, to be available preferentially on single click side by side with the LMS.

For the next statement 3.10.4 i.e., "More training is needed on how to use Learning Management System (LMS)" 92.54% of responses were of agreement with this statement that Librarians presently lack the competency to use the LMS and must be trained further, none were in disagreement while 7.46% were neutral about this statement.

Figure 5.1.3.10 shows the graphical representation of the same.

Table 5.16 Attitude of teachers/experts/professionals towards integration of e-resources with the Learning Management System

(Total Resp. = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.10.1	The OPAC needs to be integrated with the course on the Learning Management System so that library staff/teachers can upload/edit/create library collections directly through the LMS itself.	0	0	8	31	28
		0.00%	0.00%	11.94%	46.27%	41.79%
		CD = 0.00%			**CA** =88.06%	
3.10.2	Resources from online databases/resources must be integrated with the course on the Learning Management System.	0	0	5	35	27
		0.00%	0.00%	7.46%	52.24%	40.30%
		CD = 0.00%			**CA** = 92.54%	
3.10.3	Discovery search must be available integrating class resources, library resources, databases and e-resources so that teachers can find the information and resources on a single click from the LMS itself.	0	0	9	31	27
		0.00%	0.00%	13.43%	46.27%	40.30%
		CD = 0.00%			CA = 86.57%	
3.10.4	More trainings are needed on how to use Learning Management System (LMS)	0	0	5	31	31
		0.00%	0.00%	7.46%	46.27%	46.27%
		CD = 0.00%			CA = 92.54%	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement

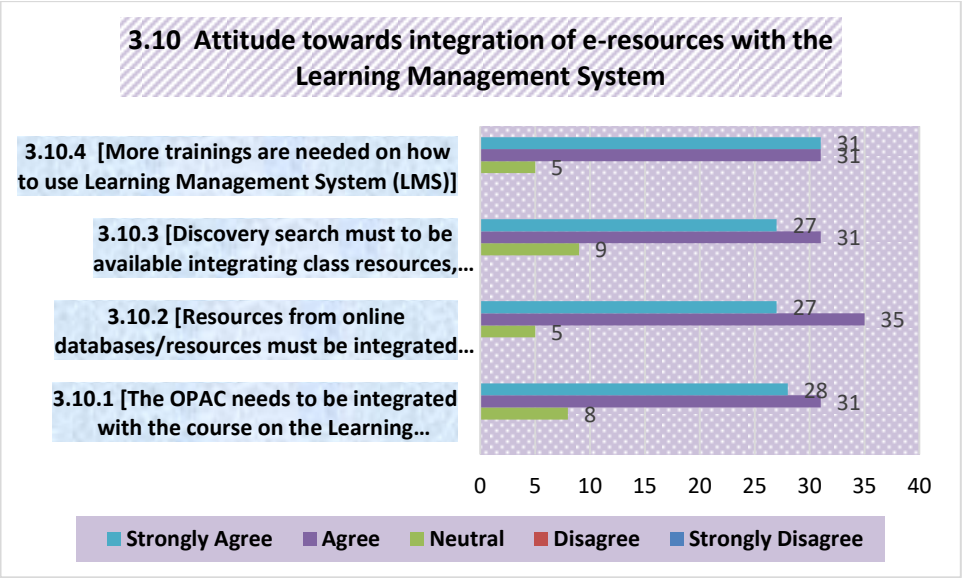

Figure 5.1.3.10Attitude of teachers/experts/professionals towards integration of e-resources with the Learning Management System

5.1.3.11 General attitude of teachers/experts/professionals towards future perspectives of E-learning

Table 5.17 predicts the general attitude of teachers/experts/professionals towards future perspectives of E-learning. To analyze the responses, the data has been gathered into: agreement (CA = SA+AG) options, disagreement (CD = DA+SD) options and the neutral (NE) option.

The question is divided into four statements 3.11.1, 3.11.2, 3.11.3 and 3.11.4 to assess the attitude of the respondent towards future perspectives of E-learning.

The statement 3.11.1 "Online learning will benefit by increasing efficiency in teaching/learning" has 83.59% (56) respondents in agreement, predicting that most of the teachers/experts/professionals have thinking that more efficient teaching and learning will ultimately lead to enhanced online learning. Only a small number of 4.48% (3) disagrees with the statement and do not think so, while 11.94% (8) were neutral toward this statement.

The statement 3.11.2 i.e., "Skill-based courses or Special training for students may be provided for learners to learn more effectively by using online learning/E-learning" has 88.06% of respondents in agreement reflecting that special and supplementary courses and training will lead to the students superseding through online/E-learning too, 1.49% in disagreement about such steps while 10.45% were neutral.

Whereas, in the statement at 3.11.3 i.e., "E-learning is an additional task that may affect the routine works of the library/ Department" 65.68% of respondents were in agreement that E-learning is presently proving to be an add on aspect besides their normal routine work, 13.44% in disagreement while 20.90% were neutral about the issue.

For the next statement 3.11.4 i.e., "E-learning may be useful in blended learning" 86.57% of responses were in agreement as traditional learning is already going on and all are aware of it so it is the development of E-learning that will lead to the overall progress of blended learning, none disagreed with it while 13.43% were neutral for this statement.

Figure 5.1.3.11 shows the graphical representation of the same.

Table 5.17 General attitude of teachers/experts/professionals towards future perspectives of E-learning

(Total Resp. = 67)

S. No.	Statement	SD	DA	NE	AG	SA
3.11.1	Online learning will benefit by increasing efficiency in teaching/learning	0	3	8	30	26
		0.00%	4.48%	11.94%	44.78%	38.81%
		CD =4.48%			**CA** = 83.59%	
3.11.2	Skill-based courses or Special training for students may be provided for learners to learn more effectively by using online learning/E-learning	0	1	7	33	26
		0.00%	1.49%	10.45%	49.25%	38.81%
		CD = 1.49%			**CA** = 88.06%	
3.11.3	E-learning is an additional task that may affect the routine works of the library/ Department	2	7	14	26	18
		2.99%	10.45%	20.90%	38.81%	26.87%
		CD = 13.44%			CA = 65.68%	
3.11.4	E-learning may be useful in blended learning	0	0	9	31	27
		0.00%	0.00%	13.43%	46.27%	40.30%
		CD = 0.00%			CA = 86.57%	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement

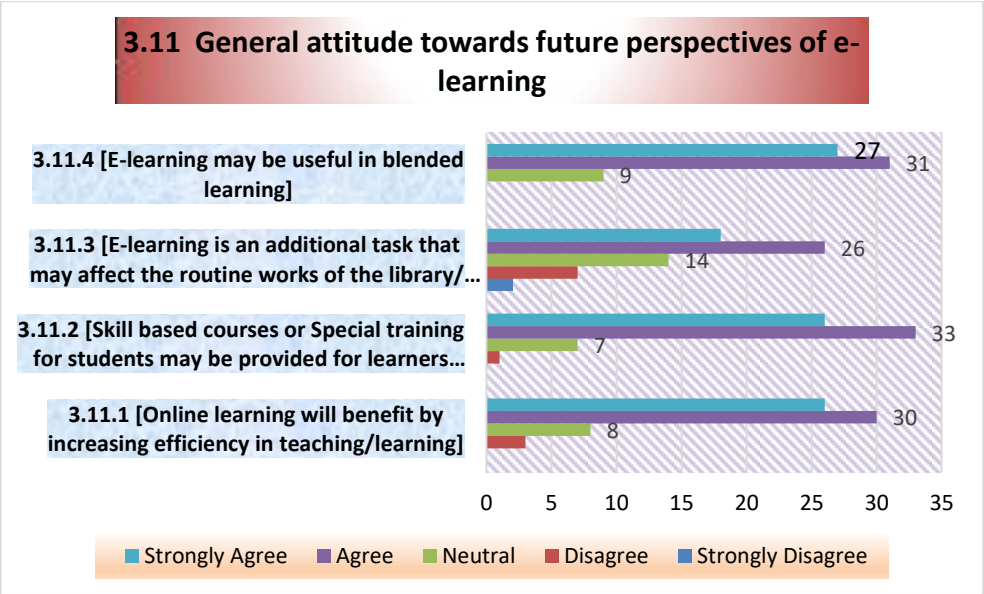

Figure 5.1.3.11General attitude of teachers/experts/professionals towards future perspectives of E-learning

5.1.3.12 Any challenge(s), faced by LIS teachers/experts/professionals in E-learning of LIS:

There are many challenges, which have been faced by LIS teachers/experts in handling and supporting E-learning in the Library and Information Science sector in India, a descriptive question was asked. The responses received were varied and summarized below:

- Lack of awareness
- Poor Electricity, insufficient Infrastructure and Internet problem, etc. is being faced, which is a big challenge for E-learning.
- Student's enthusiasm and motivation are less in online learning and they lack sincerity.
- Low degree of motivation among students and teachers.
- Lack of courses, and e-books in LIS
- Closed access
- Need for a Strong LMS and evaluation system

- Infrastructure and workload management
- Lack of skills among the recipients
- Computer literacy among LIS students
- Systems and platforms are paid and lack awareness and willingness.
- Learners are not aware of E-learning facilities and Teachers are not competent in using E-learning tools and technologies. Needs training for Teachers and students to adopt it.
- To run any type of online course Librarian needs trained support staff. So need human resources with efficient skills.
- The pandemic of Covid-19 has altered the reception as well as catering of education to the public. So newer changes and innovative must be brought in to solve the difficulties encountered. Teachers have become habitual to the traditional methods of teaching in the form of face-to-face lectures, and therefore, they hesitate in accepting any change. But amidst this crisis, we have no other alternative left other than adapting to the dynamic situation and accepting the change. It will be beneficial for the education sector and could bring a lot of surprising innovations.

5.1.3.13 LIS teachers/experts/professionals overall comment about E-learning in Library and Information Science sector in the country:

To know, their overall comment about E-learning in LIS sector in the country, a descriptive question was asked to LIS teachers/experts/professionals. The responses received were varied and summarized below:

- It complements traditional learning.
- In a developing country like India population is the prime problem, so we cannot cope up with E-learning. Traditional learning is more useful to teach in the classroom.
- E-learning in the LIS sector is on an increasing trend.
- A blended learning approach is more beneficial.
- Requirement of more courses

- We should adopt it as soon as, possible.
- We have excellent facilities at CSIR-NAL Bangalore, so no difficulty or challenge is faced. More the digital, the better for research.
- COVID 19 Pandemic situation showed us how to cope with the technology and E-learning systems and every institute has tried its best for their students
- The traditional mindset of faculty needs to be changed because of COVID in the world, E-learning is useful to all.
- E-learning should be initiated at the university level in the initial stages.
- Reasonably good in terms of awareness and transit but excellence is to be gained.
- All Universities, Govt. Institutions must encourage E-learning. The future is digital and E-learning must be part and parcel of LIS.
- It has to be used to supplement the face-to-face offline method of teaching.
- It is good practice in our subject but for practical papers, it is very difficult to teach papers like Classification practical, Cataloguing practical, etc.
- In the future, the scope of E-learning in Library and Information Science will be very effective and much more than traditional learning.
- Today's scenario shows that gradually all faculty have adopted blended learning so library science professionals should strongly frame our LIS syllabus in E-learning mode.

5.1.3.14 LIS teachers/experts/professionals suggestions for further improvement of E-learning in Library and Information Science sector in the country:

As the last question, the LIS teacher/expert respondents were asked to give their suggestions for further improvement of E-learning in the Library and Information Science sector in the country. The responses received from the LIS teachers/experts for this descriptive question are given below:

- Librarians should be active in any case.
- There is a quick requirement to evolve an E-learning platform in LIS.

- If we want E-learning in LIS, firstly we should improve the infrastructure-related E-environment in the country.
- A more focused approach is required!
- Subscribe more to E-resources for E-learning.
- Further awareness about E-learning and its benefits for the teacher and learner fraternity must be generated.
- Need to develop ICT infrastructure with software.
- Need more budget
- LIS department-wise E-learning portals to be designed and developed.
- When regular courses are going on in support of this additional teaching online will support the students.
- The curriculum should include E-learning as a compulsory component. Dept. should develop a web portal to facilitate the students with E-learning resources, power points, lectures, etc.
- More participation is needed from all teachers, students and administrators
- More funding and.80:20 (offline: online) blended teaching are appreciated.
- Govt. Support, University Budget Allocation, Sharing of Network resources, Sharing of E-Resources, Gateways and Portals for resources and knowledge sharing.
- Enhance the infrastructural facilities for both teachers and students. Access to the network is a common problem for both teachers and students.
- Learners and teachers should be aware that there is a necessity to take interest in adopting E-learning tools and technologies.
- Developing E-learning courses and E-Content material is today's need of the hour. Thanks.
- During Covid-19, the learners, practitioners, and other stakeholders in education were suffering, as it lead to the suspension of physical classes and loss of physical interaction of the learners with teachers and among themselves. Under these conditions, electronic learning (E-learning), Online learning, and the use of ICT gadgets became essential.

5.2 Survey of LIS e-learners/students

The varying aspects of E-learning in the Library and Information Science sector in India were queried regarding their view/stance in the questionnaire for LIS e-learners/students. The questionnaire was cleaved into three parts:

1. Demographic or the basic Information;
2. Background Knowledge or familiarity with the Concept of E-learning, and
3. General viewpoint of e-learners/students towards E-learning in LIS in India including suggestions and general remarks.

300 responses in total were collected and analyzed to meet the objectives of our study. The analysis has been furcated into various sections as below:

5.2.1 Demographic Information of LIS e-learners/students

Demographical information refers to the essential and assessable basic statistics of a population such as gender, age, education, and so on. So the figures/tables below will include information such as gender, age, and education of student/learner respondents in the LIS sector. The data has been analyzed as under:

5.2.1.1Age Group Distribution of LIS e-learners/students

The LIS e-learners/students belonging to varied age groups have been represented in Figure 5.2.1.1. According to the figure below, the largest frequency of respondents belong to the age group 25-35 years which are 136 (45%) in number. This age group is a normal representative of students/learners of graduate and post-graduate streams. Second in frequency comes the age group below 25 years accounting for 102 (34%) of the total, then comes the group 35-45 years with 50 (17%), then 45-55 years with 11 (4%) and lastly the age group above 55 years which is rare for e-learners/students and covers only 1 (0%) respondents.

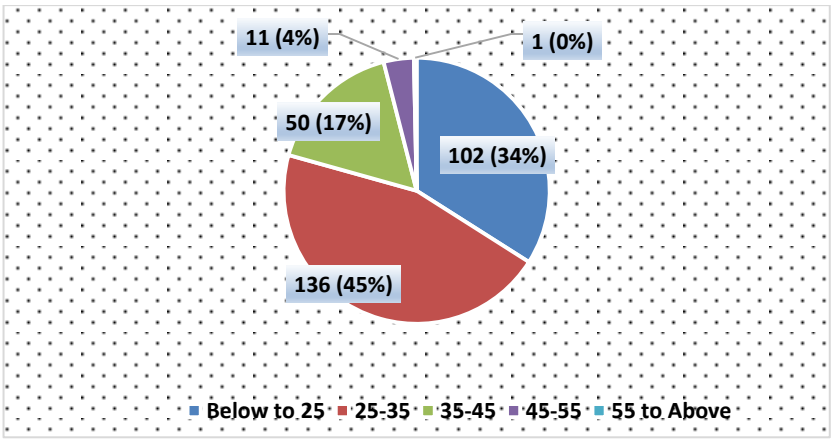

Figure 5.2.1.1Age Group Distribution of LIS e-learners/students

5.2.1.2 Gender-wise Distribution of LIS e-learners/students

The respondents of the questionnaire for LIS e-learners/students have been differentiated gender-wise as shown in Figure 5.2.1.2, below. It is clear that out of the total 300 responses received, 170 (57%) respondents belong to the male gender as compared to 130 (43%) belonging to the female gender. Thus the participation of male respondents is substantially more when compared with that of the female respondents.

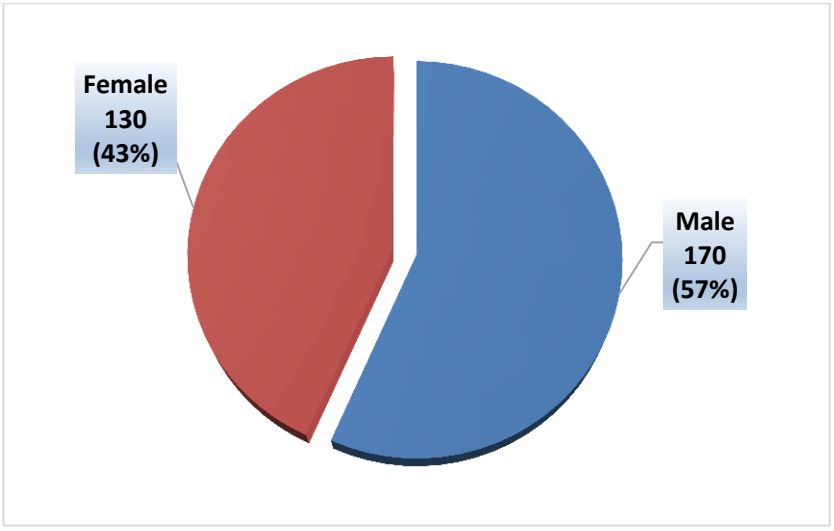

Figure 5.2.1.2Gender-wise Distribution of LIS e-learners/students

5.2.1.3 State-wise Frequencies of Students / Learners

State-wise Distribution of the number of respondents is presented in the Table. no. 5.18 and the figure 5.2.1.3 below. Out of our total 300 respondents the frequency of respondents belonging to different states and Union Territories in

descending order is as follows: Ranging between the highest number 62 (20.7%) from Rajasthan, 35 from Maharashtra, 27 from Madhya Pradesh, 25 each from Gujarat and Haryana, 19 each from Punjab and Uttar Pradesh, 13 each from Bihar and Delhi, 10 from Telangana, 9 Tamil Nadu, 8 Karnataka, 7 Kerala, 5 Odisha, 4 each from Himachal Pradesh, Jharkhand and West Bengal, 3from Andhra Pradesh, 2 each from Arunachal Pradesh and Chandigarh to the minimum 1 (0.3%) each from Assam, Dadra and Nagar Haveli, Puducherry and Uttarakhand have shared their viewpoints about E-learning for our research.

Table 5.18 State-Wise Distribution of Students/Learners

Sr. No.	State Name	Number of respondents	Percentage	Sr. No.	State Name	Number of respondents	Percentage
1	Rajasthan	62	20.67%	13	Kerala	7	2.33%
2	Maharashtra	35	11.67%	14	Odisha	5	1.67%
3	Madhya Pradesh	27	9.00%	15	Himachal Pradesh	4	1.33%
4	Gujarat	25	8.33%	16	Jharkhand	4	1.33%
5	Haryana	25	8.33%	17	West Bengal	4	1.33%
6	Punjab	19	6.33%	18	Andhra Pradesh	3	1.00%
7	Uttar Pradesh	19	6.33%	19	Arunachal Pradesh	2	0.67%
8	Bihar	13	4.33%	20	Chandigarh	2	0.67%
9	Delhi	13	4.33%	21	Assam	1	0.33%
10	Telangana	10	3.33%	22	Dadra and Nagar Haveli	1	0.33%
11	Tamil Nadu	9	3.00%	23	Puducherry	1	0.33%
12	Karnataka	8	2.67%	24	Uttarakhand	1	0.33%

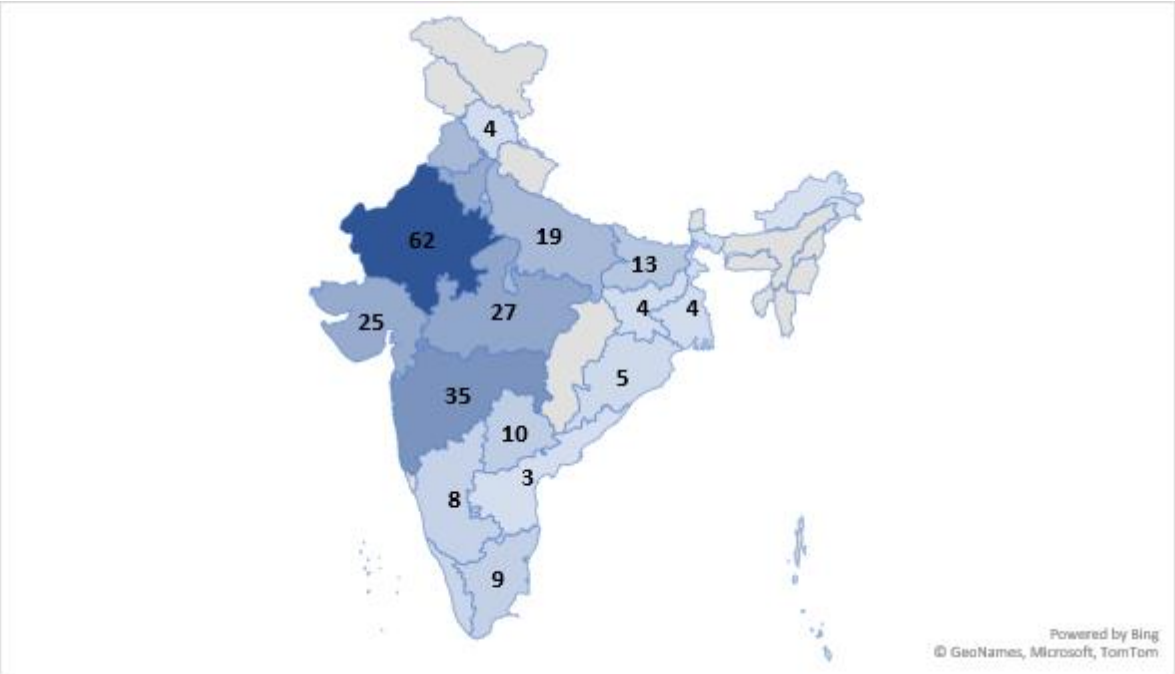

Figure 5.2.1.3Graphical representation of State-Wise Distribution of Students/e-Learners

5.2.1.4 Level of Education of Students/e-Learners

The levels of education of students/e-learners in the LIS sector responding to our questionnaire on E-learning have been depicted in Figure 5.2.1.4 as under. Out of the total 300 respondents, 64 (21.3%) are having bachelor's degrees in Library and Information Science, and 196 (65.3%) which is the maximum number are having master's degree in Library and Information Science, as is also evident from the maximum frequency in the age group distribution for 25-35 years age group representing the P.G. levels. Students with M.Phil. Degree are 20 (6.7%) and those having Ph.D. degree in Library and Information Science along with bachelor's and master's degree in LIS also accounts for 20 (6.7%) in number.

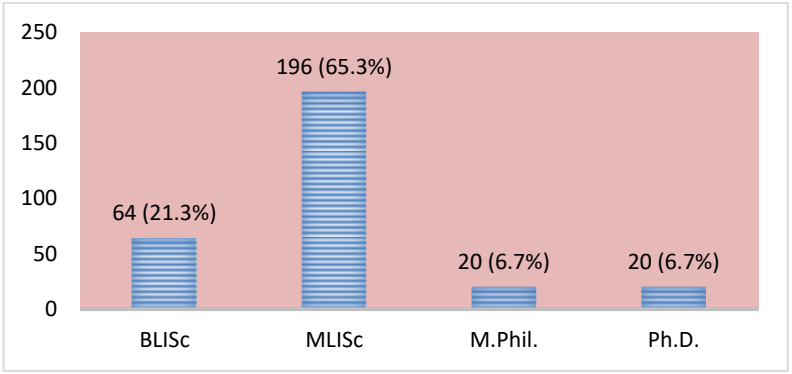

Figure 5.2.1.4Level of Education of Respondents (Students/e-Learners)

5.2.2 Background Knowledge on the Concept of E-learning

In this part of the questionnaire, we have tried to perceive the general and background knowledge of the students or e-learners of the Library and Information Science sector towards the various aspects of E-learning in India. The diverse questions put forward in this section helped us to know whether the students/e-learners have joined/attended any E-learning course /program/webinar/resource of E-learning in the LIS sector, about learning in E-learning mode, the type of courses participated in, the number of programs participated, the objective of the same, about the approach of E-learning, knowledge of OER's in E-learning, use and access of any E-learning platforms/portals/applications for learning LIS, about the use of tools and technologies of E-learning as well as the E-learning possibilities for course/career faced by the LIS learners. Responses to the questionnaire have been enumerated in form of tables and figures below and helped us to understand the background knowledge of students/learners regarding E-learning in LIS in India. The analysis of the data has been done in the following manner:

5.2.2.1 Have you joined any awareness program/webinar/resource of E-learning in the LIS sector?

Question 5.2.2.1 was used to ask the students/learners whether they have any background knowledge about E-learning in LIS by the means of joining any awareness program or webinar or resource in the LIS sector through E-learning. The answers to this question were in form of 'Yes' or 'No'. 268 (89.33% of the) respondents replied with Yes specifying that they have joined one or the other E-learning program/webinar/resource during their studies. Only 32 (10.66%) replied with No, indicating they have not joined any such event. Figure 5.2.2.1 represents the graphical plot for the same.

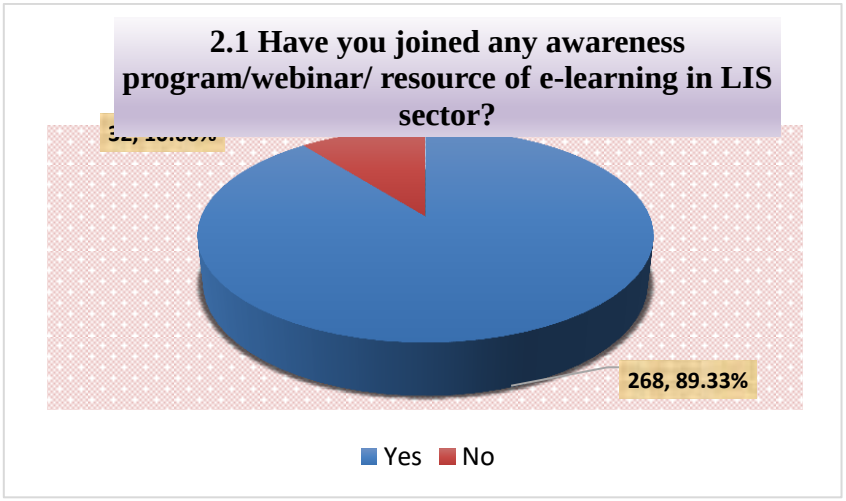

Figure 5.2.2.1Background Knowledge of Students/e-Learners about any awareness program/webinar/ resource of E-learning in the LIS sector

5.2.2.2 Have you joined/attended any E-learning course/program in Library and Information Science/ webinar on E-learning/ delivery of e-resources of any institute/university?

Question 5.2.2.2 has been formed to ask the students/learners whether they have any background knowledge about any course or program or webinar or delivery of e-resource in LIS through E-learning by joining or attending any of such events. The answers to this question were also in form of 'Yes' or 'No'. 234 (78% of the) respondents replied with 'Yes' specifying that they have joined or attended such events. Only 66 (22%) replied with 'No', indicating they have not joined any such event. Figure 5.2.2.2 represents the graphical plot for the same.

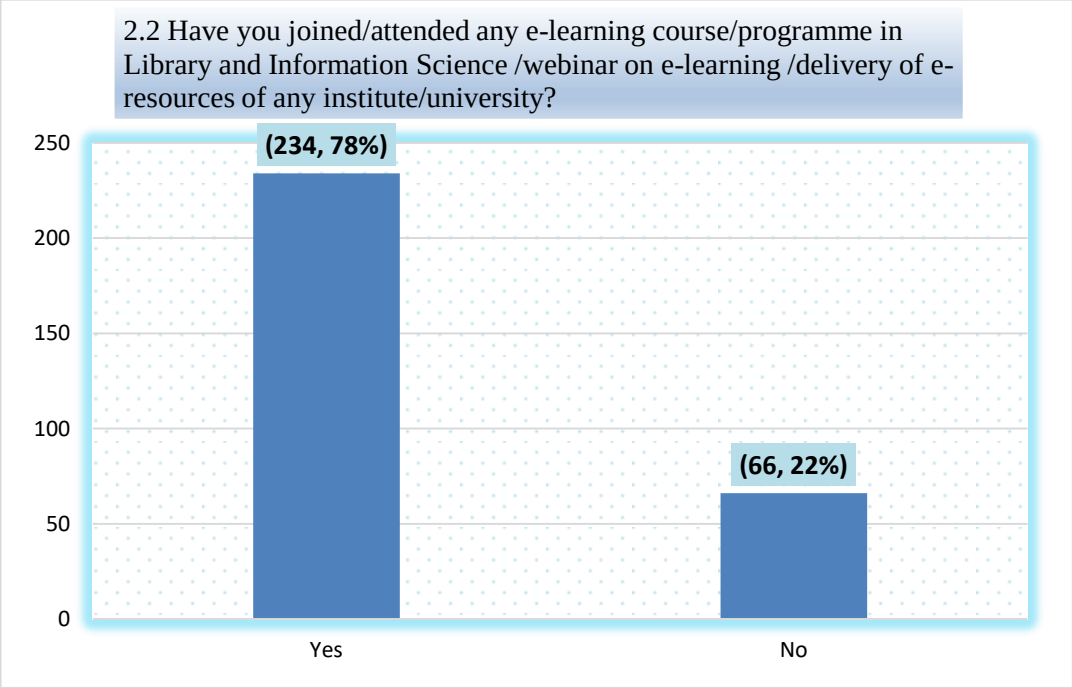

Figure 5.2.2.2Background Knowledge of Students/e-Learners about any E-learning course/program in LIS /webinar on E-learning /delivery of e-resources of any institute/university?

For those who joined or attended/replied in 'Yes' the query was further extended through a sub query:- "**If yes, what mechanism was used to make available/delivery of content, please brief**" asking them to mention the mechanism they used for the purpose. This sub query received 59 responses which have been gathered as follows: The mechanisms used were Online, Zoom Meetings (video lectures), Learning Management System (LMS), KOHA Library Software, Swayam, Google Classroom/Meet, Microsoft Teams, Moodle, DSPACE, e-contents and

MOOCs, Elms, Email, YouTube, Video conferencing applications, Webex Meetings, Mobile phones, Whatsapp and through the documents scanned from these varied platforms.

5.2.2.3 Which type of E-learning course/program(s), you have participated in?

For this query, the responses were projected in the form of four choices which are:-

The Certificate Course with 101 (33.7%) participation.

The Diploma Course with 25 (8.3%) participation.

The Degree Course (both Graduate and Post Graduate) with 82 (27.3%) participation.

The Continuing Education Programmes (Webinar/Seminar/Conference/Workshop etc.) with 210 (70%) participation, out of a total of 300.

Figure 5.2.2.3 below indicates the different types of E-learning course/program(s) in which the LIS students/e-learners participated.

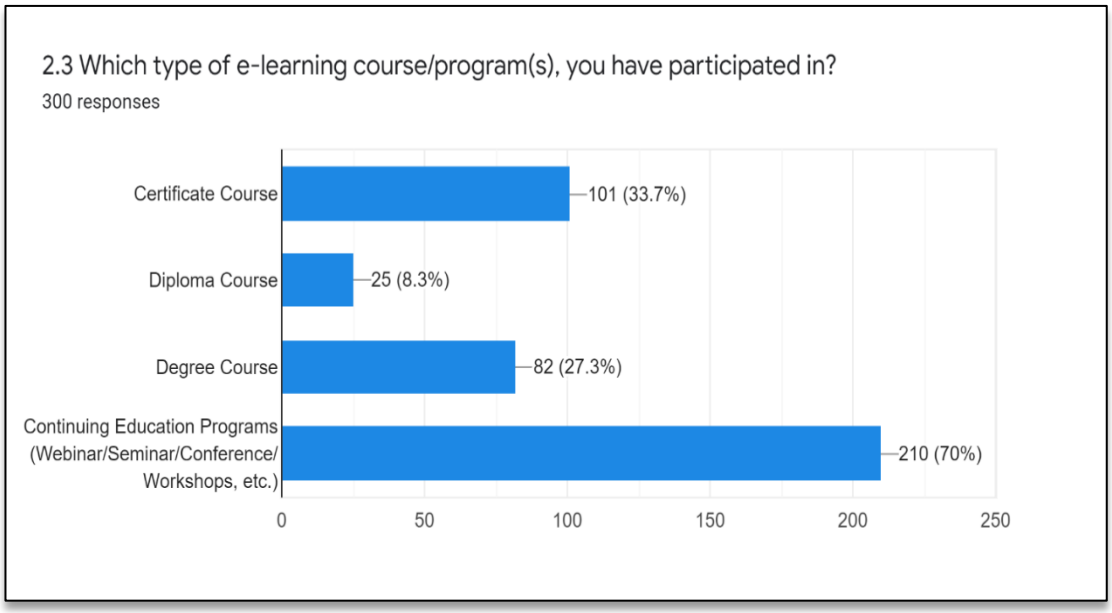

Figure 5.2.2.3Background Knowledge of Students/e-Learners about the type of E-learning course/program(s)

For those who took part in some other E-learning course/program(s) the query was further extended as “Any other, please specify:…..” to mention the

course/program they participated in. For this sub query, we received 34 responses which have been gathered below. The respondents also participated in another course/program(s) such as Summer library training 2021 Central University of Haryana, Online Language class, Digital marketing, AMCAT, Faculty Development, LTC2019, ETLIS Course, Induction & Orientation Programme, SLA, ILA, ARPIT, French language course from swayam portal, FDP as well as pursuing Ph.D. in online Mode.

5.2.2.4 What have you learned through E-learning mode?

For this query, the responses were received in the form of four choices which are:-

Full Fledge Course with 79 (26.3%) participation.

Any Paper (Course) in a program with 68 (22.7%) participation.

Any Component of a Course with 56 (18.7%) participation.

Participation in Webinar, Online Lecture, etc. with 219 (73%) participation, out of a total of 300.

Figure 5.2.2.4 below indicates the different types of course/program(s) learned by the LIS students/e-learners through the E-learning mode.

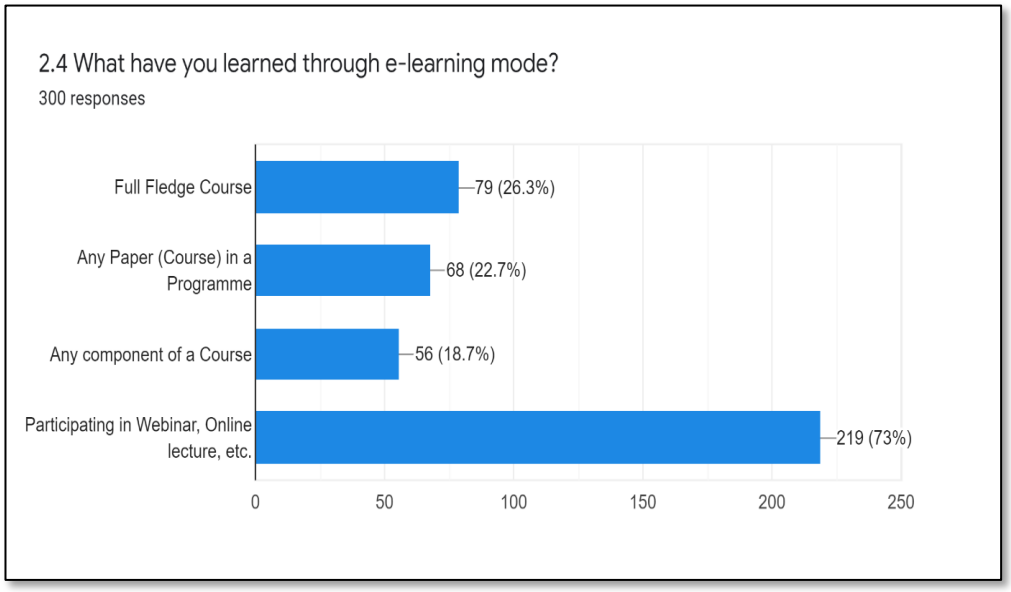

Figure 5.2.2.4Learning by Students/e-Learners through E-learning mode

For those who learned from the E-learning mode the query was further extended as "Any other, please specify:….." to mention the other course/program they have learned through the above-mentioned mode. For this subquery we received 22 responses which mostly fall under the above four choices, some different choices have been gathered as follows: E-learning Heroes community, Short term course ARPIT, Awareness of technology and technical support in the library**.**

5.2.2.5 How many E-learning course/program (s) have you participated in?

Here the number of E-learning course/program (s) that the students/e-learners have participated in has been collected in the form of five choices which are:-

One, Two, Three, Four and Five or more with 88(29.33%), 87(29.00%), 41(13.67%), 13(4.33%) and 71(23.67%) participation respectively, out of the total 300.

Figure 5.2.2.5 below indicates the number of E-learning course/program(s) in which the LIS students/e-learners participated.

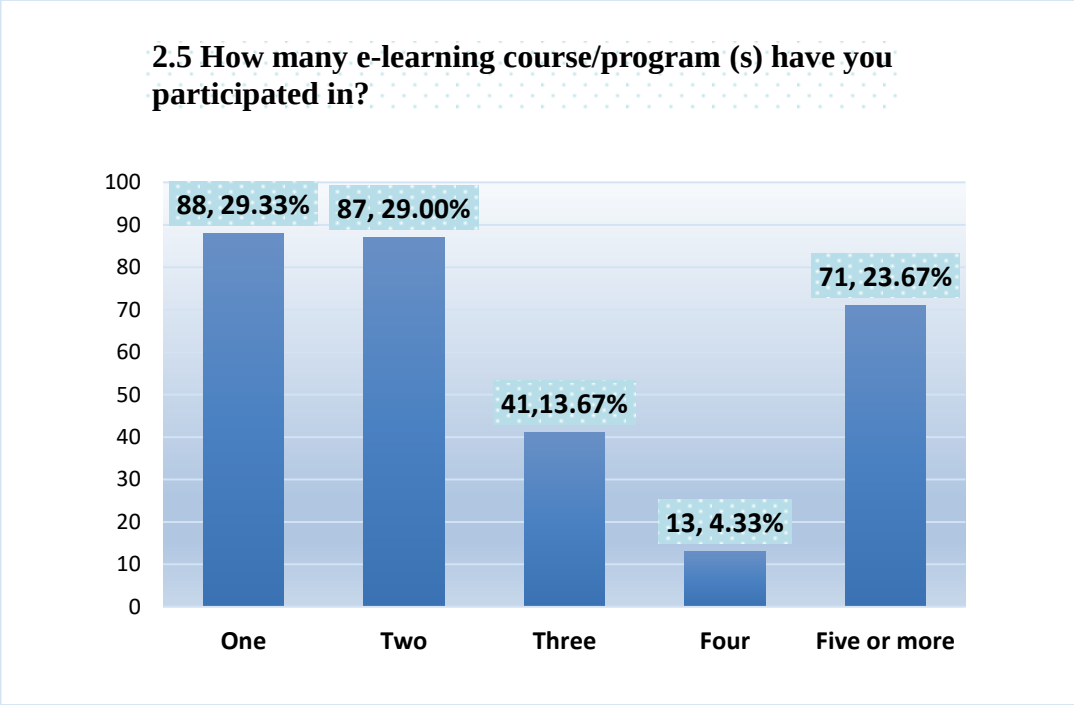

Figure 5.2.2.5Number of the E-learning course/program(s), the respondents have participated.

5.2.2.6 Why did you participate in E-learning?

In this query, the students/e-learners have been asked about what was their target of joining or participating in the E-learning. The responses have been collected in form of eight different alternatives which are:-

For joining a course, with 101(33.7%) responses of the students/e-learners,

For joining a program, with 81(27%) responses of the students/e-learners,

For updating knowledge/skills, with 199(66.3%) responses of the students/e-learners,

For continuing education and learning during the COVID-19 pandemic, with 175(58.3%) responses of the students/e-learners,

For professional growth/career advancement, with 145(48.3%) responses from the students/e-learners,

For adopting new pedagogies of education and learning, with 118(39.3%) responses of the students/e-learners,

For enriching your profile, with 89(29.7%) responses of the students/e-learners and the last,

For improving productivity in the working environment, with 125(41.7%) responses of the students/e-learners, out of the total 300.

Figure 5.2.2.6 below indicates the responses of students/e-learners about their target of joining or participating in E-learning.

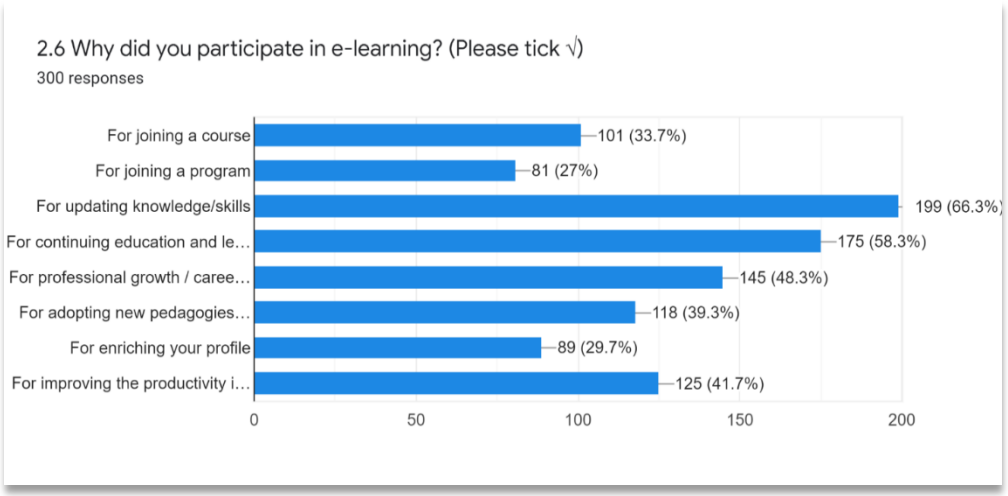

Figure 5.2.2.6Reasons for students/e-learners to participate in E-learning.

The query was further extended as “Any other, please specify:…..” to mention any other reason for joining /participating in an E-learning course/program. For this subquery we received 19 responses which mostly fall under the above-mentioned choices, few differed and have been gathered as follows: E-learning to be used in all subjects in the study, To understand new technological trends, I am a working employee, it also saves my leave as well as time. I can attend it with my work at my workplace, Understand the online education and E-learning gap.

5.2.2.7 Do you plan to participate in another E-learning course in the future?

Question 5.2.2.7 was used to ask the students/learners whether the students/e-learners have any plans in the future to participate in another E-learning course. The answers to this question were in form of ‘Yes’ or ‘No’. 265(88.3% of the) respondents replied with Yes specifying that they have plans in the future to participate in another E-learning course or program. Only 35(11.7%) replied with No, indicating they do not have a plan for any such event in the future. Figure 5.2.2.7 represents the graphical plot for the same.

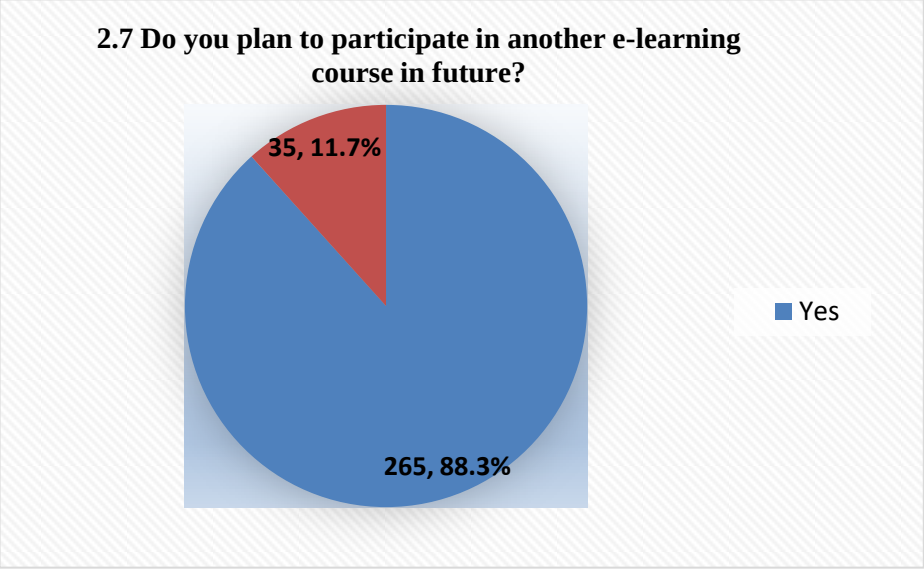

Figure 5.2.2.7Plan of the students/e-learners to participate in another E-learning course in the future.

5.2.2.8 What kind of E-learning approach you are aware about?

In this query, the students/e-learners were asked about the kind of E-learning approach they knew or were aware of. The responses have been collected in form of six different alternatives which are as follows:-

Content available on Websites, with 209(69.7%) responses from the students/e-learners,

Content available on E-learning portals/platforms like E-Pgpathshala, E-Gyankosh, SWAYAM, etc., with 224(74.7%) responses of the students/e-learners,

Availability/delivery through social media applications like WhatsApp, Facebook, Telegram, etc., with 143(47.7%) responses of the students/e-learners,

Joining online sessions, with 143(47.7%) responses of the students/e-learners,

Online examination / evaluation, with 122(40.7%) responses of the students/e-learners,

Availability of e-resources/e-books, with 172(57.3%) responses of the students/e-learners, out of the total 300.

Figure 5.2.2.8 below indicates the responses of students/e-learners about the kind of E-learning approach they are cognizant of.

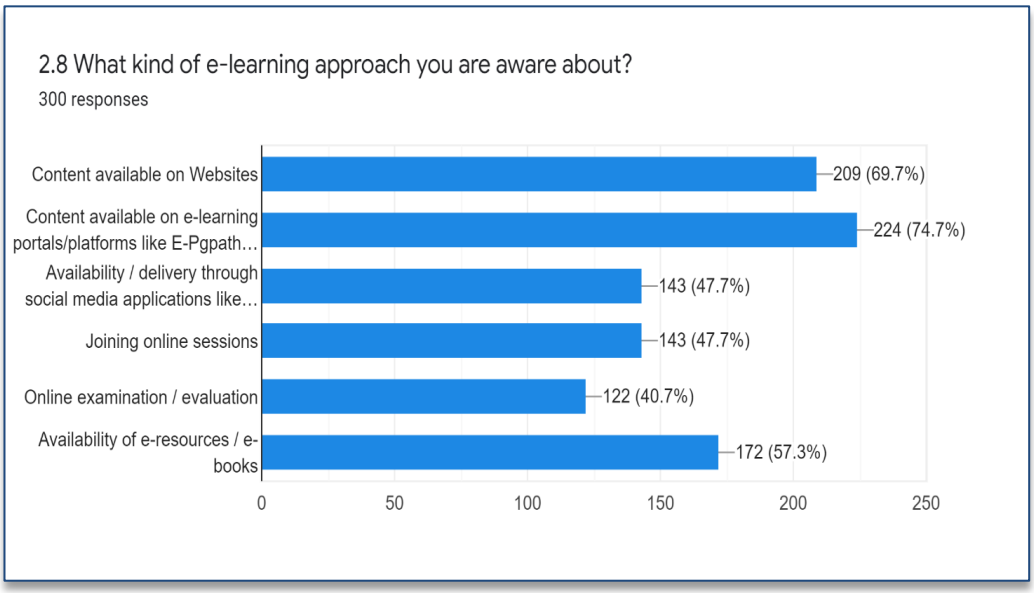

Figure 5.2.2.8Awareness of the students/e-learners about the approach of E-learning.

The query was further extended as "Any other, please specify:….." to mention any other approach for E-learning. For this sub query we received 17 responses which mostly fall under the above-mentioned choices, few that differed were generally yes or no, others have been gathered as follows: Online studies, this

approach in clib certificate course was very helpful, direct courses preferable, NDLI Webinars.

5.2.2.9 Do you have knowledge about Open Educational Resources (OERs) for E-learning in the LIS sector?

Question 5.2.2.9 was used to ask the students/e-learners about having any cognition of Open Educational Resources for E-learning in the LIS sector. The answers to this question were in form of 'Yes' or 'No'. 223(74.3% of the) respondents replied with Yes specifying that they are aware of or are having knowledge of OERs for E-learning in the LIS sector. Only 77(25.7%) replied with No, indicating they do not have awareness of OERs. Figure 5.2.2.9 represents the graphical plot for the same.

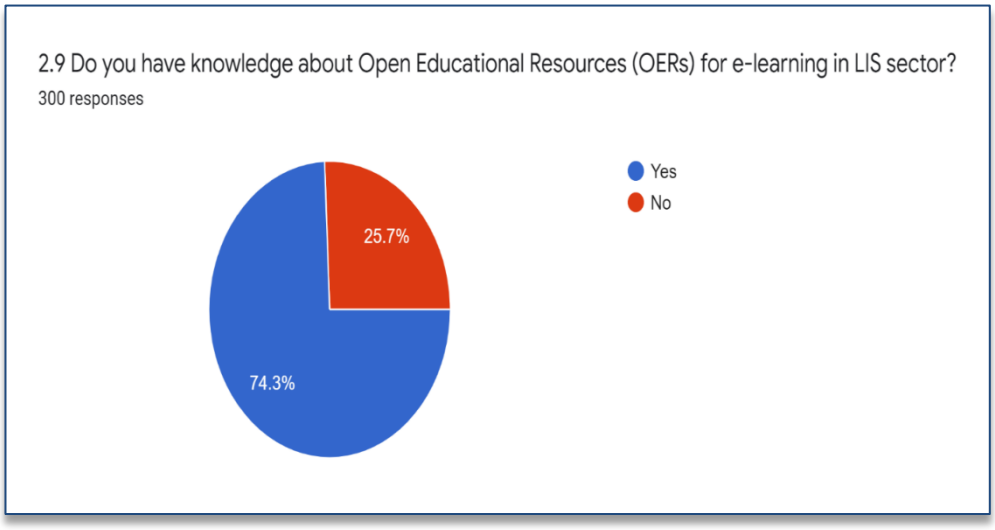

Figure 5.2.2.9Graphical representation of the Background Knowledge of students/e-learners about OERs.

For those who replied in 'Yes' the query was further extended through a sub query:- "**If yes, please describe their usefulness in your study**" asking them about the use of OERs in their study. This sub query received 40 responses which have been gathered as follows: Reference purpose, clarification doubts, enhance knowledge, It's useful for finding contents in one platform, Helped me improve my awareness, easily available and effective in use, The best thing about OER is that anyone can access the content anytime through virtual mode using internet according to their choice, OER is very useful in getting good information in open access form, In the current situation open is trending like open data, open science, open access,

and open education so it has become the basic requirement, Save the time and money, is User friendly and having flexibility of location, More appropriate in pandemic period and much more, Free Study, for better understanding, Customization facility also available, For research and development, E-PGPathshala an initiative by INFLIBNET is a great source for information regarding the two years course of MLISc as well as SET syllabus, provides e content, videos and quiz for the relevant topic and it is really helpful in order to prepare for an exam as well as to prepare notes, Due to pandemic, OERs were very useful for our study. As a student of IGNOU, I used to take classes on e-gyankosh since due to the pandemic physical appearance was prohibited and I cleared all my visions related to Library Science and this helped me a lot. Swayam portal launched by MHRD is another example of OERs which helped me to gain additional knowledge about Information science and technology and other technical knowledge.

5.2.2.10 Have you used any E-learning platforms/portals/applications for learning Library and Information Science?

Question 5.2.2.10 was used to ask the students/e-learners whether they have used any E-learning platforms/portals/applications for learning Library and Information Science subject. The answers to this question were in form of 'Yes' or 'No' with 270 (90% of the) respondents replying in Yes specifying that they have used E-learning platforms/portals/ applications for learning Library and Information Science. Only 30(10%) replied with No, indicating they have not used E-learning platforms/portals/applications for learning Library and Information Science. Figure 5.2.2.10 represents the graphical plot for the same.

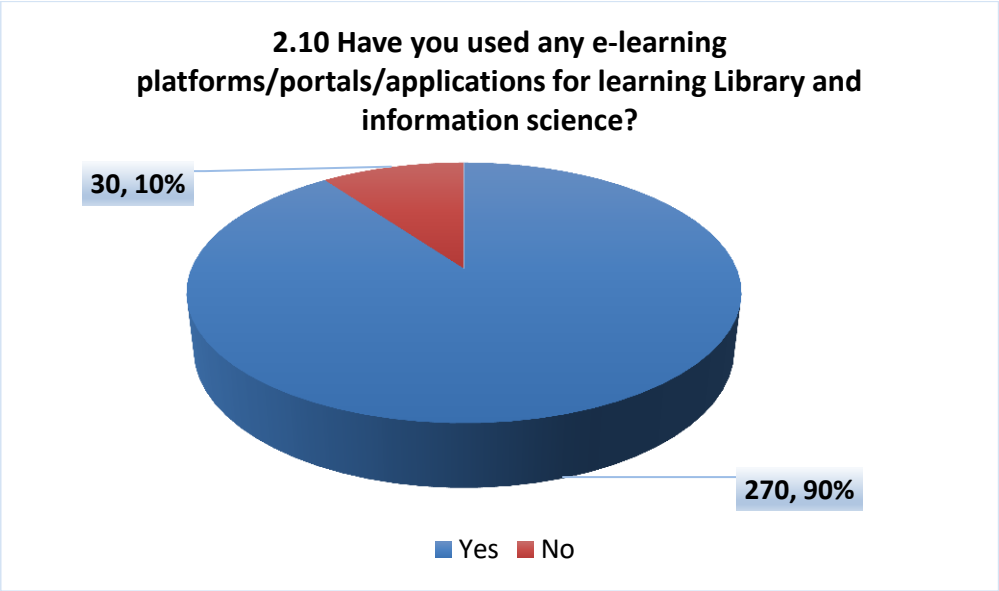

Figure 5.2.2.10Background Knowledge of Students/e-Learnersabout using any E-learning platform/portal/application for learning LIS

5.2.2.11 Have you accessed any of the following E-learning platforms/portals for any of your study/work?

In this query, the students/e-learners have been asked whether they have assessed any of the following given platforms/portals for their study/work. The five most common platforms/portals are already mentioned in form of alternatives which are:-

SWAYAM Portal has been used by 229(84.8%) of the students/e-learners,

SWAYAM Prabha has been used by 79(29.3%) of the students/e-learners,

Spoken Tutorial has been used by 62(23%) of the students/e-learners,

NPTEL has been used by 78(28.9%) of the students/e-learners,

GIAN – Global Initiative of Academic Network, been used by 49(18.1%) of the students/e-learners, out of the total 270 for their study/work.

Figure 5.2.2.11 below indicates the portals/platforms used by the students/e-learners for their study/work from the most common E-learning ones.

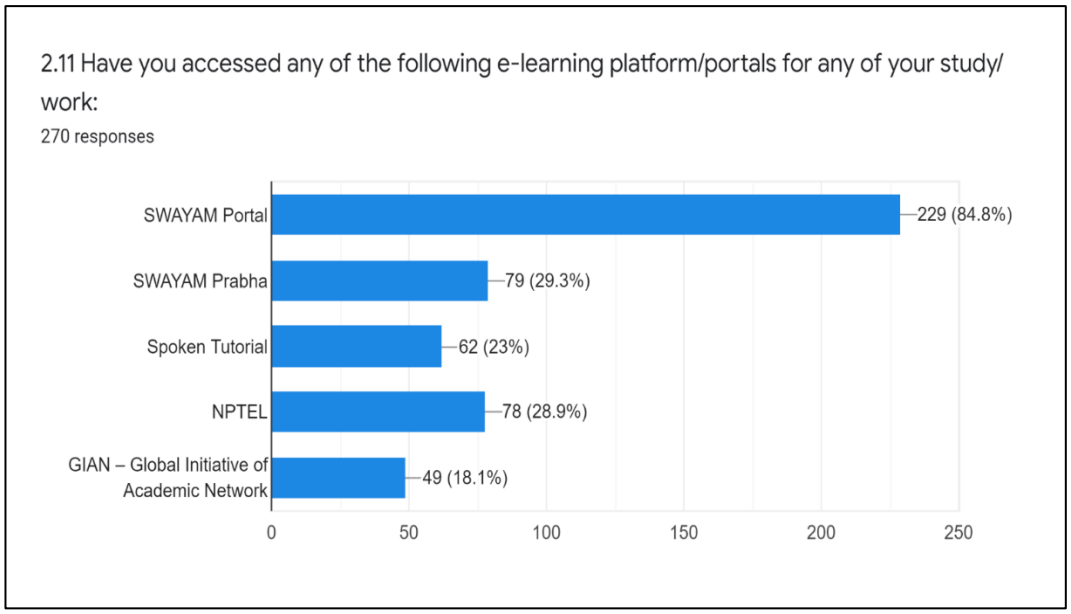

Figure 5.2.2.11Graphical representation of assessment of any of the mentioned E-learning platforms/portals for study/work by students/e-learners.

5.2.2.11(a) Have you accessed any of the following E-learning platforms/portals for Content/Delivery?

In this query, the students/e-learners have been asked whether they have assessed any of the following given platforms/portals for Content/Delivery. The five most common platforms/portals are already mentioned in form of alternatives which are:-

E-Pgpathshala has been used by 217(80.4%) of the students/e-learners,

E-Gyankosh has been used by 190(70.4%) of the students/e-learners,

National Digital Library of India (NDLI) has been used by 143(53%) of the students/e-learners,

Vidhya Mitra has been used by 51(18.9%) of the students/e-learners,

DIKSHA has been used by 57(21.1%) of the students/e-learners, out of the total 270 for Content/Delivery.

Figure 5.2.2.11(a) below indicates the portals/platforms used by the students/e-learners for Content/Delivery from the most common E-learning ones.

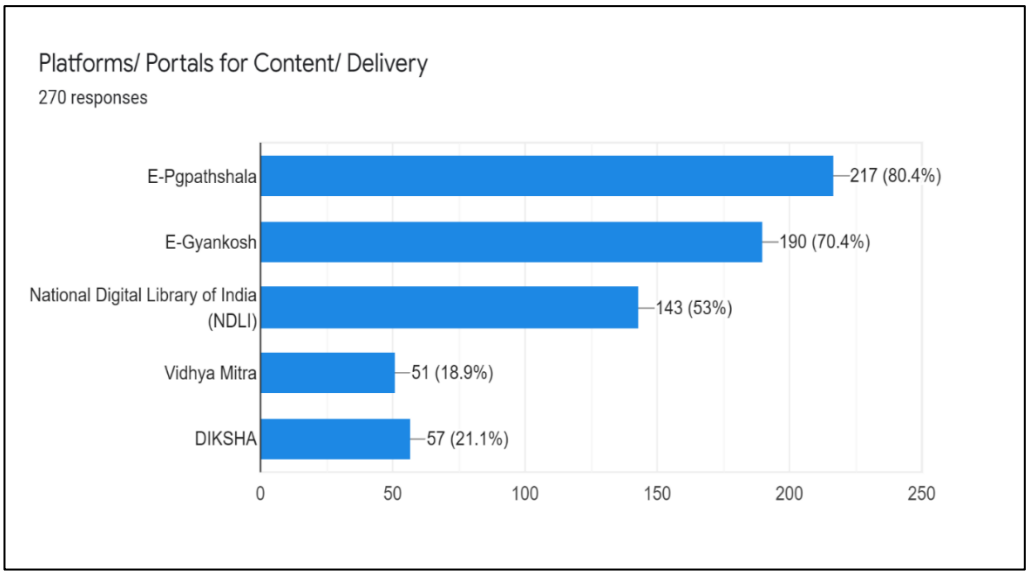

Figure 5.2.2.11(a) Graphical representation of assessment of any of the mentioned E-learning platforms/portals for Content/Delivery by students/e-learners.

The query was further extended both for 5.2.2.11 and 5.2.2.11(a) as "Any other, please specify:….." to mention any other portals/platforms of E-learning. For this subquery we received 20 responses which mostly fall under the above-mentioned choices, few that differed were generally yes or no, others have been gathered as follows: YouTube channels related to LIS Studies, Udemy, Byju's, Vedantu, Doaj, doabooks, MIT Lectures, OCLC, WORLDCAT, IDNCAT, Ieee, Springer.

5.2.2.12 Have you used the tools and technologies of E-learning?

Question 5.2.2.12 was used to ask the students/e-learners whether they have used any tools and technologies of E-learning in Library and Information Science. The answers to this question were in form of 'Yes' or 'No' with 262(87.3% of the) respondents replying in Yes specifying that they have used tools and technologies of E-learning in Library and Information Science. Only 38(12.7%) replied with No, indicating they have not used the tools and technologies of E-learning. Figure 5.2.2.12 represents the graphical plot for the same.

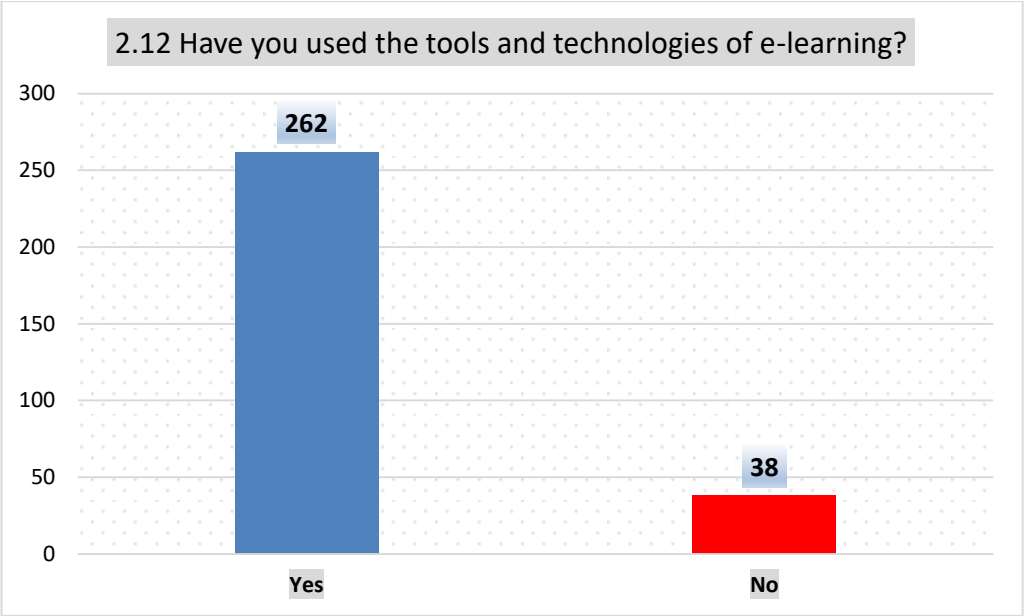

Figure 5.2.2.12Graphical representation about the use of E-learning tools and technologies by Students/e-Learners.

5.2.2.12(a) Effectiveness of Mobile/Computer-based E-learning tools and technologies for delivery of the content.

Table 5.19 represents the effectiveness of Mobile/Computer-based E-learning tools and technologies for the delivery of the content. Respondents were asked to rate the different given tools and technologies in preference format from preference 1 to 5. Responses in the table have been analyzed into Highly Recommended (Ranked 1 and 2), Average Recommended (Ranked 3) and Below to Average Recommended (Ranked 4 and 5) options.

Moodle LMS: It has been Highly Recommended (Ranked 1 and 2) by 97 respondents, Average Recommended (Ranked 3) by 31 and Below to Average Recommended (Ranked 4 and 5) by 83 respondents.

Content Management System: It has been Highly Recommended (Ranked 1 and 2) by 94, Average Recommended (Ranked 3) by 42 and Below to Average Recommended (Ranked 4 and 5) by 83 respondents.

Websites: It has been Highly Recommended (Ranked 1 and 2) by 108, Average Recommended (Ranked 3) by 57 and Below to Average Recommended (Ranked 4 and 5) by 99 respondents.

Whatsapp: It has been Highly Recommended (Ranked 1 and 2) by 130, Average Recommended (Ranked 3) by 53 and Below to Average Recommended (Ranked 4 and 5) by 95 respondents.

Email: It has been Highly Recommended (Ranked 1 and 2) by 120, Average Recommended (Ranked 3) by 58 and Below to Average Recommended (Ranked 4 and 5) by 97 respondents.

Google Drive: It has been Highly Recommended (Ranked 1 and 2) by 124, Average Recommended (Ranked 3) by 54 and Below to Average Recommended (Ranked 4 and 5) by 83 respondents.

One Drive: It has been Highly Recommended (Ranked 1 and 2) by 109, Average Recommended (Ranked 3) by 51 and Below to Average Recommended (Ranked 4 and 5) by 51 respondents.

Facebook: It has been Highly Recommended (Ranked 1 and 2) by 124, Average Recommended (Ranked 3) by 59 and Below to Average Recommended (Ranked 4 and 5) by 71 respondents.

LinkedIn: It has been Highly Recommended (Ranked 1 and 2) by 109, Average Recommended (Ranked 3) by 50 and Below to Average Recommended (Ranked 4 and 5) by 59 respondents.

Telegram: It has been Highly Recommended (Ranked 1 and 2) by 134, Average Recommended (Ranked 3) by 52 and Below to Average Recommended (Ranked 4 and 5) by 65 respondents.

Thus Telegram proved to be the most highly ranked mobile/computer-based E-learning tool/technology for delivery of content, Whatsapp being the second.

Table 5.19 Effectiveness of Mobile/Computer-based E-learning tools and technologies for delivery of the content

Mobile/Computer-based E-learning tools and technologies for delivery of the content	Highly recommended (Ranked 1 & 2)	Average (Ranked 3)	Below to average recommended (Ranked 4 & 5)
Moodle LMS	97	31	83
Content Management System	94	42	83
Websites	108	57	99
Whatsapp	130	53	95
Email	120	58	97
Google Drive	124	54	83
One Drive	109	51	51
Face Book	124	59	71
Linkedin	109	50	59
Telegram	134	52	65

Figure 5.2.2.12(a) shows the graphical representation of the same.

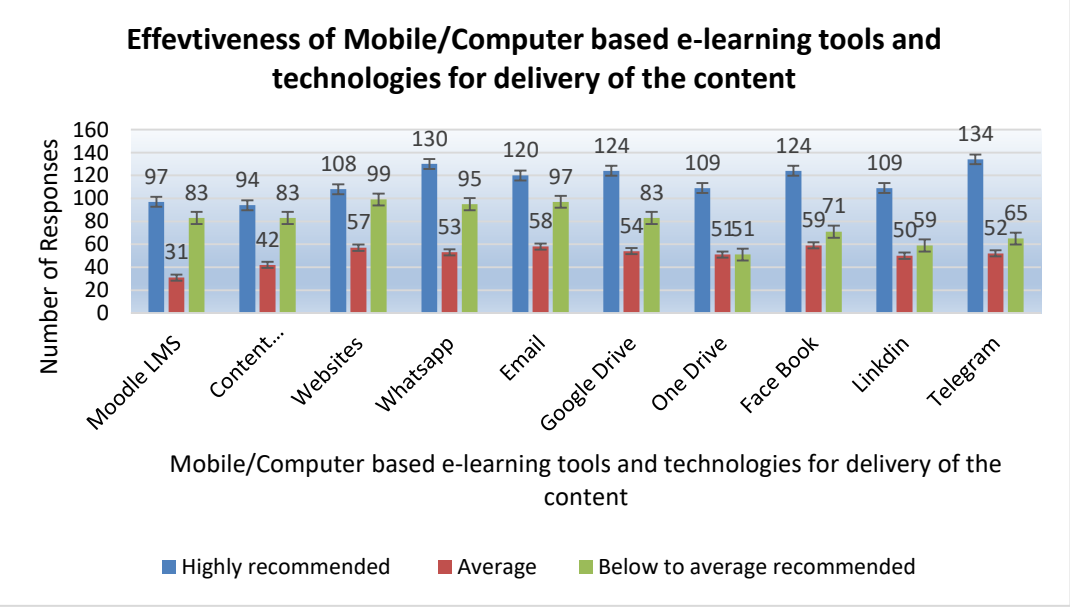

Figure 5.2.2.12(a) Graphical representation of Effectiveness of Mobile/Computer-based E-learning tools and technologies for delivery of the content.

5.2.2.13 Did you access the course from your home computer, work computer, or both?

For this query, the respondents were asked from where they assessed the E-learning course, from the home computer, the work computer, or from both:-

The Home Computer/Laptop was used by 157(52.33%) respondents.

The Work Computer/Laptop by38(12.7%) respondents.

Both Home Computer and Work Computer by 105(35%)respondents, out of a total 300.

Figure 5.2.2.13 below indicates the varied assessment of the E-learning course.

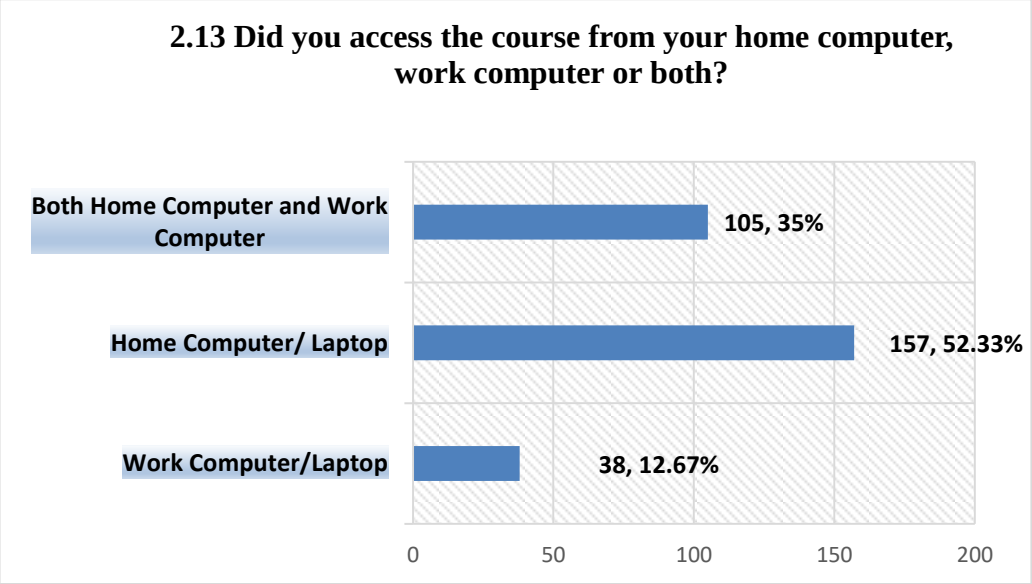

Figure 5.2.2.13Graphical representation of assessment of the course either from the home computer, work computer, or both by Students/e-Learners.

5.2.2.14 Do you agree/have knowledge about the E-learning possibilities in your course/career?

The query 5.2.2.14 asked the students/e-learners whether they agree with/have any recognition of E-learning possibilities in their Library and Information Science course/career. The answers to this question were in form of 'Yes' or 'No' with 279(93% of the) respondents replying in Yes specifying that they have recognition of E-learning possibilities in their Library and Information Science course/career. Only 21(7%) replied with No, indicating they do not have knowledge of E-learning possibilities in their course/career. Figure 5.2.2.14 represents the graphical plot for the same.

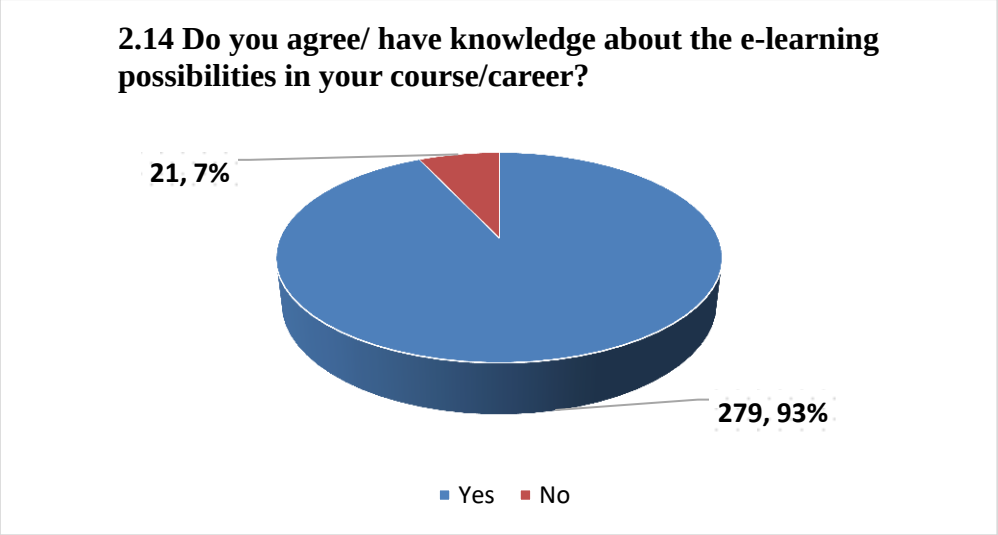

Figure 5.2.2.14Graphical representation of Students/e-Learners about the knowledge of E-learning possibilities in course/career.

5.2.3: General Attitude of LIS Students/E-Learners towards E-learning for LIS in India

In this part, we have tried to perceive what is the overall outlook and orientation of the students or e-learners of the Library and Information Science sector towards the various aspects of E-learning in India. The diverse questions put forward in this section helped us to know about the varying credentials, obstacles, issues and other prospects of E-learning faced by the LIS learners. This part of the questionnaire consisted of 8 sections having 32 options which have been enumerated in the form of tables and figures below, and helped us to understand the attitude of students/ learners regarding E-learning in LIS in India. A Likert scale (five-point) was used to measure agreement or disagreement in the related options. In addition, 3 more sections without options were there which signified the suggestions and miscellaneous points of the LIS students/ learners.

5.2.3.1 General attitude of Students/e-Learners towards handling/operating the E-learning tools and technologies

Table 5.20 predicts the general attitude of students/e-learners towards handling/ operating the E-learning tools and technologies. To analyze the responses, the data has been gathered into three groups:

First for agreement (CA) including Strongly Agree (SA) and Agree (AG) options,

Second for disagreement (CD) which includes Disagree (DA) and Strongly Disagree (SD) options and,

Third for the neutral (NE) option.

The question is divided into four statements 3.1.1, 3.1.2, 3.1.3 and 3.1.4 to assess the attitude of the respondent towards handling/operating the E-learning tools and technologies.

The statement 3.1.1 "I feel confident while using the E-learning tools and technologies during my studies" has 91.67% (275) respondents in favour of agreement, which justifies that the majority of the students/e-learners can confidently use the E-learning tool and technologies. Only a small number of 1.66% (5) disagrees with the statement and were not confident, while 6.67% (20) were neutral about using the E-learning tools and techniques.

The statement 3.1.2 i.e., "The online interaction with the peer group is easier and this helps in learning" has 81.00% of respondents in agreement reflecting simplicity in learning using E-learning interactions with peer groups, 4.00% in disagreement showing difficulty through E-learning while 15.00% were neutral.

Whereas in the statement at 3.1.3 i.e., "One can learn, while working through E-learning" 88.00% of respondents were in agreement, 2.67% were in disagreement while 9.33% were neutral manifesting that working online also leads to learning.

For the next statement 3.1.4 i.e., "I have completed the E-learning course successfully" 79.67% of responses were of agreement with this statement, only 5.67% were of disagreement while 14.67% were neutral, showing that the majority of students/e-learners have done/completed some E-learning course.

Figure 5.2.3.1 shows the graphical representation of the same.

Table 5.20 General attitude of Students/e-Learners towards handling/operating the E-learning tools and technologies

(Total Resp. = 300)

S. No.	Statement	SD	DA	NE	AG	SA
3.1.1	I feel confident while using the E-learning tools and technologies during my studies	1	4	20	119	156
		0.33%	1.33%	6.67 %	39.67%	52.00%
		CD = 1.66%			**CA = 91.67%**	
3.1.2	The online interaction with the peer group is easier and this helps in learning	1	11	45	124	119
		0.33%	3.67%	15.00 %	41.33%	39.67%
		CD = 4.00%			**CA** = 81.00%	
3.1.3	One can learn while working through E-learning	1	7	28	134	130
		0.33%	2.33%	9.33 %	44.67%	43.33%
		CD = 2.67%			**CA** = 88.00%	
3.1.4	I have completed the E-learning course successfully	5	12	44	116	123
		1.67%	4.00%	14.67 %	38.67%	41.00%
		CD = 5.67%			**CA** = 79.67%	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement.

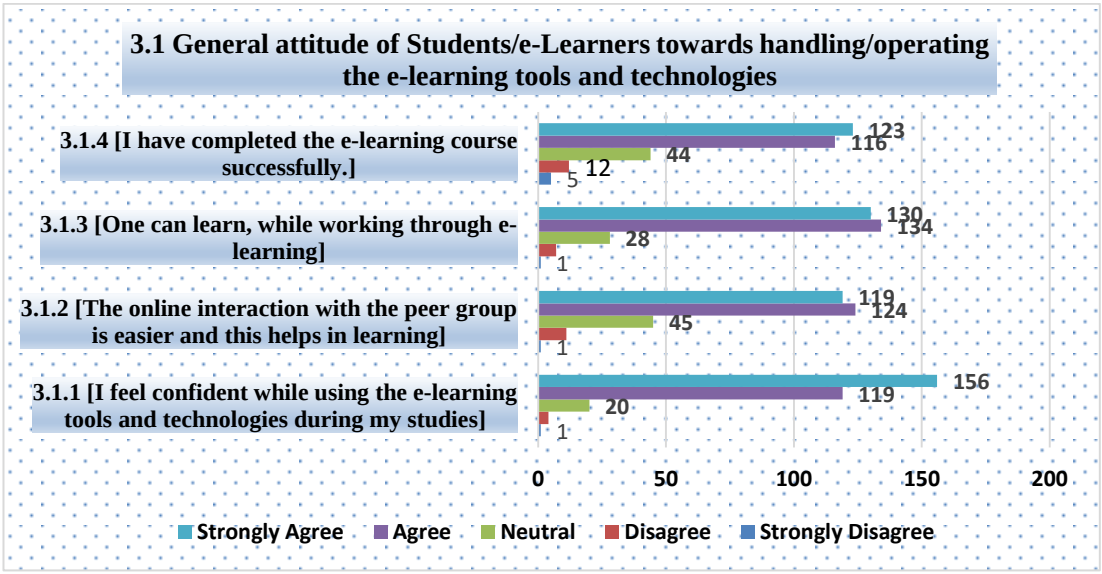

Figure 5.2.3.1Graphical Representation of the General attitude of Students/e-Learners towards handling/operating the E-learning tools and technologies

5.2.3.2 General attitude of Students/e-Learners towards searching and accessing the E-learning resources in LIS

Table 5.21 represents the general attitude of students/e-learners towards searching and accessing the E-learning resources in LIS. Responses in the table have been analyzed into agreement (CA = AG+SA), disagreement (CD = SD+DA) and the neutral (NE) options.

The query has been subdivided into four statements 3.2.1, 3.2.2, 3.2.3 and 3.2.4 to determine the view of the respondents towards searching and accessing the E-learning resources in LIS.

The statement 3.2.1 "E-learning tools and technologies are easier when compared to searching using the printed books" has 85.00% (255) respondents in favour of agreement, which clears that majority of the students/e-learners find E-learning tools and technologies easier for searching matter in comparison to printed materials. Only a small number, 4.67% (14) disagrees with the statement and found printed material easier, while 10.33% (31) were neutral in using any means.

The statement 3.2.2 i.e., "In E-learning, the learning activities performed can be much easier as compared to the classroom learning activities" has 69.67% of respondents in agreement and 10% in disagreement while 20.33% were neutral, showing that E-learning activities are far more facile than the classroom activities.

Whereas in the statement at 3.2.3 i.e., "Downloading the digital content (such as videos, text pictures and sound) from a LIS portal/website, for learning" 85.00% of respondents agreed about downloading some content for learning, only 2.00% in total disagreed about downloading while 13.00% were neutral.

However, their response to next statement 3.2.4 i.e., "Immediate availability of information in E-learning enhances my overall learning" shows that learning was aided or enhanced for 85.00%, who are in agreement, not enhanced for 6.00% who are in disagreement and not affected for 9.00% who are neutral.

Figure 5.2.3.2 shows the graphical representation of the same.

Table 5.21 General attitude of Students/e-Learners towards searching and accessing the E-learning resources in LIS

(Total Resp. = 300)

S. No.	Statement	SD	DA	NE	AG	SA
3.2.1	E-learning tools and technologies are easier when compared to searching using the printed books	6	8	31	120	135
		2.00%	2.67%	10.33 %	40.00 %	45.00%
		CD =4.67%			**CA** = 85.00%	
3.2.2	In E-learning, the learning activities performed can be much easier as compared to the classroom learning activities	10	20	61	117	92
		3.33%	6.67%	20.33 %	39.00 %	30.67%
		CD =10.00%			**CA** = 69.67%	
3.2.3	Downloading the digital content (such as videos, text, pictures and sound) from a LIS portal/website, for learning	4	2	39	124	131
		1.33%	0.67%	13.00 %	41.33 %	43.67%
		CD =2.00%			**CA** = 85.00%	
3.2.4	Immediate availability of information in E-learning enhances my overall learning	5	13	27	120	135
		1.67%	4.33%	9.00 %	40.00 %	45.00%
		CD =6.00%			**CA = 85%**	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement.

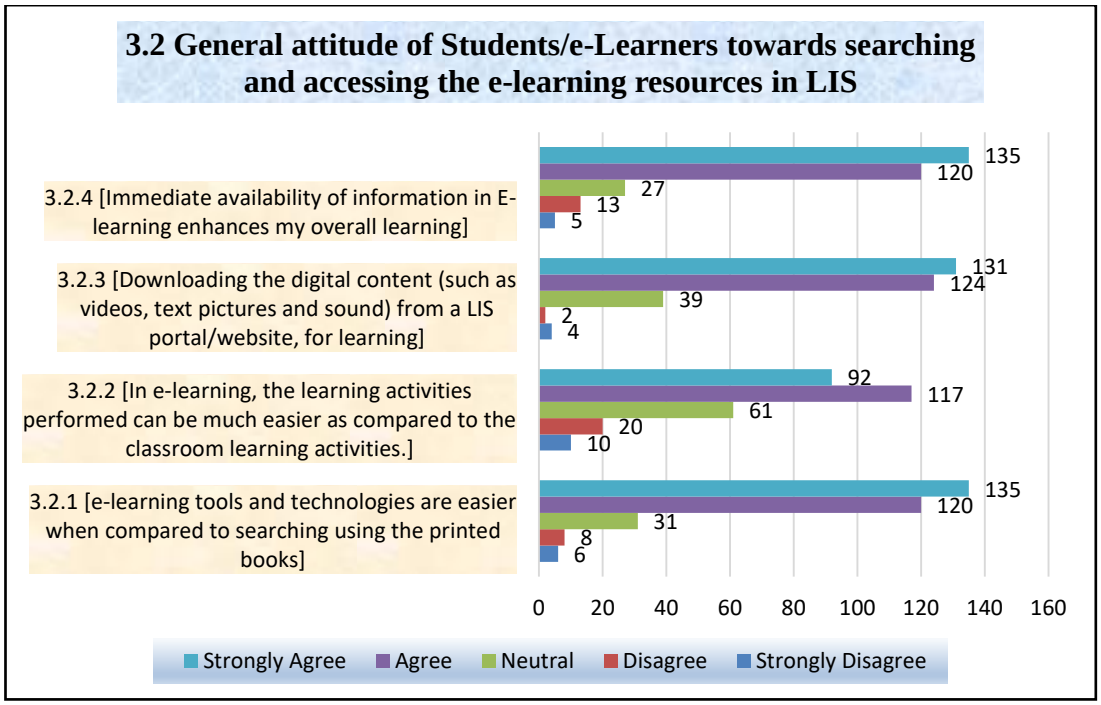

Figure 5.2.3.2Graphical Representation of the General attitude of Students/e-Learners towards Searching and accessing the E-learning resources in LIS

5.2.3.3 General attitude of Students/e-Learners towards effectiveness and quality of E-learning pedagogy in the LIS sector

Table 5.22 represents the general attitude of Students/e-Learners towards the efficacy and quality of E-learning pedagogy in the LIS sector. Responses in the table have been analyzed into: agreement (CA = AG+SA), disagreement (CD = SD+DA) and the neutral (NE) options.

The four statements 3.3.1, 3.3.2, 3.3.3 and 3.3.4 determine the view of respondents towards the effectiveness and quality of E-learning pedagogy in the LIS sector as follows:

The statement 3.3.1 “E-learning is an interesting way to learn than the printed books and classroom situations.” has 66.67% (200) respondents in agreement, which means a greater number of learners find E-learning interesting. Only a small number around 10.67% (32) disagrees with the statement and didn’t find E-learning more interesting than books or classroom teaching, while 22.67% (68) were neutral with both situations.

The statement 3.3.2 i.e., “E-learning helps in learning at my own pace” has 89.67% of respondents in agreement and 1.34% in disagreement while 9.00% were

neutral, showing that E-learning is highly appropriate to learn at a pace convenient to the user.

In the statement 3.3.3 which states, "One can learn while working, through E-learning and Leaner has the option to learn either synchronously/asynchronously or both" 82.67% of respondents agreed, only 4.00% disagreed while 13.33% were neutral depicting that learning while working through E-learning can be done by synchronous or asynchronous or both methods.

However, their response to next statement 3.3.4 i.e., "Quality assurance is an issue in E-learning, as there is no mechanism of quality control" has 76.66% of respondents in agreement which reveals that learners on large scale are not convinced about the quality of E-learning contents, 2.00% who are in disagreement may be convinced, while 21.33% were neutral about the quality of E-learning.
Figure 5.2.3.3 shows the graphical representation of these statements.

Table 5.22General attitude of Students/e-Learners towards effectiveness and quality of E-learning pedagogy in the LIS sector

(Total Resp. = 300)

S. No.	Statement	SD	DA	NE	AG	SA
3.3.1	E-learning is an interesting way to learn than printed books and classroom situations.	2	30	68	105	95
		0.67%	10.00%	22.67%	35.00%	31.67%
		***CD* = 10.67%**			***CA* = 66.67%**	
3.3.2	E-learning helps in learning at my own pace	2	2	27	132	137
		0.67%	0.67%	9.00%	44.00%	45.67%
		***CD* = 1.34%**			***CA* = 89.67**	
3.3.3	One can learn while working, through E-learning and Leaner has the option to learn either synchronously /asynchronously or both	0	12	40	122	126
		0.00%	4.00%	13.33%	40.67%	42.00%
		***CD* = 4.00%**			***CA* = 82.67%**	
3.3.4	Quality assurance is an issue in E-learning, as there is no mechanism of quality control	1	5	64	118	112
		0.33%	1.67%	21.33%	39.33%	37.33%
		***CD* = 2.00%**			***CA* = 76.66%**	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement.

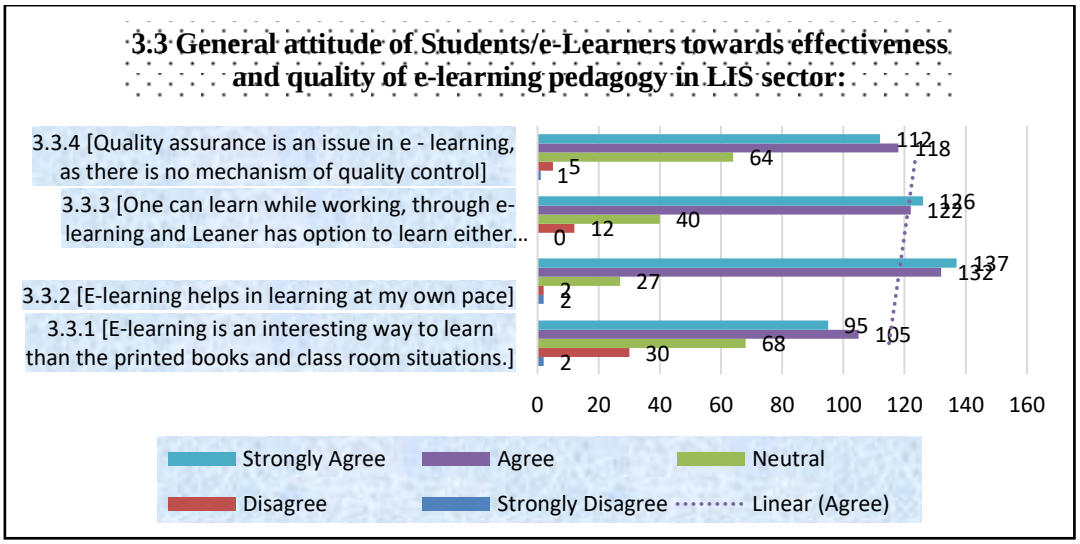

Figure 5.2.3.3Graphical Representation of the general attitude of Students/e-Learners towards effectiveness and quality of E-learning pedagogy in the LIS sector

5.2.3.4 General attitude of Students/e-Learners towards different methods of E-learning

Table 5.23 predicts the general attitude of students/e-learners towards different methods of E-learning. To analyze the responses, the data has been gathered into: agreement (CA = SA+AG) options, disagreement (CD = DA+SD) options and the neutral (NE) option.

The question is divided into four statements 3.4.1, 3.4.2, 3.4.3 and 3.4.4 to assess the attitude of the respondent towards different methods of E-learning.

The statement 3.4.1 "E-learning courses may replace face-to-face teaching/learning in future" has 73.00% (219) respondents in agreement, predicting that most of the students/e-learners have thinking that E-learning courses will supersede and will take place of the present-day in-person teaching. Only a small number of 18.66% (56) disagree with the statement and do not think so, while 8.33% (25) were neutral in any prediction.

The statement 3.4.2 i.e., "Both traditional and E-learning methods are equally important for better academic achievement in LIS" has 83.33% of respondents in agreement reflecting that both methods are necessary for outstanding results, 3.33% in disagreement that both are important while 13.33% were neutral.

Whereas, in the statement at 3.4.3 i.e., "Synchronized mode of E-learning is suitable where high bandwidth internet access is available" 82.67% of respondents were in agreement as good internet connectivity is a must for direct online learning, 4.00% were in disagreement while 13.33% were neutral about the bandwidth and access.

For the next statement 3.4.4 i.e., "Asynchronized E-learning is better where the students prefer to study as per their choice and pace" 74.00% of responses were in agreement with this statement because online material that can be accessed anytime and for unlimited time is meant for persons who are not available at a particular time or have slow learning capabilities, only 4.00% were of disagreement while 22.00% were neutral for this statement.

Figure 5.2.3.4 shows the graphical representation of the same.

Table 5.23 General attitude of Students/e-Learners towards different methods of E-learning

(Total Resp. = 300)

S. No.	Statement	SD	DA	NE	AG	SA
3.4.1	E-learning courses may replace face-to-face teaching/learning in future	22	34	25	114	105
		7.33%	11.33%	8.33%	38.00%	35.00%
		CD = 18.66%			**CA =73.00%**	
3.4.2	Both traditional and E-learning methods are equally important for better academic achievement in LIS.	1	9	40	124	126
		0.33%	3.00%	13.33%	41.33%	42.00%
		CD = 3.33%			**CA = 83.33%**	
3.4.3	A synchronized mode of E-learning is suitable where high bandwidth internet access is available	0	12	40	126	122
		0.00%	4.00%	13.33%	42.00%	40.67%
		CD = 4.00%			**CA = 82.67%**	
3.4.4	Asynchronized E-learning is better where the students prefer to study as per their choice and pace	4	8	66	122	100
		1.33%	2.67%	22.00%	40.67%	33.33%
		CD = 4.00%			**CA = 74.00%**	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement.

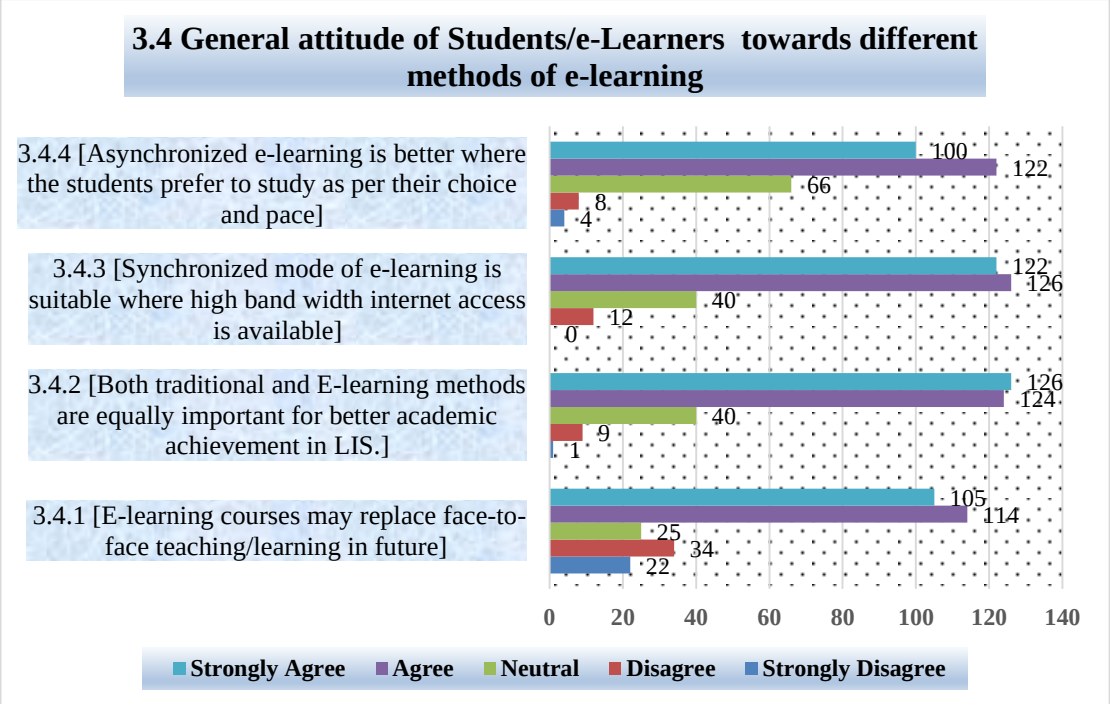

Figure 5.2.3.4Graphical Representation of the General attitude of Students/e-Learners towards different methods of E-learning

5.2.3.5 General attitude of Students/e-Learners towards glitches in acceptance of E-learning in the LIS sector

Table 5.24 represents the general attitude of students/e-learners towards glitches in acceptance of E-learning in the LIS sector. Responses in the table have been analyzed into: agreement (CA = AG+SA), disagreement (CD = SD+DA) and the neutral (NE) options.

The query has been subdivided into four statements 3.5.1, 3.5.2, 3.5.3 and 3.5.4 to determine the view of the respondents.

The statement 3.5.1 “Internet access, as well as the availability of the device, pose an issue because of the requirement of smartphone/laptop/desktop with multimedia facility” has 85.66% (257) respondents in favour of agreement, which clears that vast majority of the students/e-learners consider that availability of a multimedia device and also the internet is necessary and may not be feasible to many, posing an issue. Only a small number of 4.33% (13) disagreed with the statement, while 10.00% (30) were neutral about the use of aforesaid necessities.

The statement 3.5.2 i.e., “Learning on E-learning platform requires skills and is time-consuming” has 73.33% of respondents in agreement accepting that skill

updation and time for properly adjusting to the online environment also pose issues in E-learning, 13.66% in disagreement about time consumption or skill requirement while 13.00% were neutral about these points.

In the statement 3.5.3 i.e., "Sometimes resources linked on the course page are not opened and creates confusion" 84.34% of respondents agreed that the inability to open a course page or any important content online is the most unwanted condition in E-learning, only 5.34% disagreed while 10.33% were neutral.

The response to the next statement 3.5.4 i.e., "Faculty lack interest and that makes E-learning boring" 70.33% in agreement shows they consider the faculty at present are not well oriented and enthusiastic regarding E-learning, on the other hand, 14.67% who are in disagreement don't think so and 15.00% are neutral about any such point.

Figure 5.2.3.5 shows the graphical representation of the same.

Table 5.24 General attitude of Students/e-Learners towards glitches in acceptance of E-learning in the LIS sector

(Total Resp. = 300)

S. No.	Statement	SD	DA	NE	AG	SA
3.5.1	Internet access, as well as the availability of device, pose an issue because of the requirement of smartphones/laptops/desktops with multimedia facility	3	10	30	127	130
		1.00%	3.33%	10.00 %	42.33 %	43.33%
		CD = 4.33%			**CA = 85.66%**	
3.5.2	Learning on an E-learning platform requires skills and is time-consuming	4	37	39	135	85
		1.33	12.33	13.00	45.00	28.33
		CD =13.66			**CA = 73.33**	
3.5.3	Sometimes resources linked on the course page are not opened and creates confusion	2	14	31	152	101
		0.67	4.67	10.33	50.67	33.67
		CD = 5.34			**CA = 84.34**	
3.5.4	Faculty lack interest and that makes E-learning boring	8	36	45	121	90
		2.67	12.00	15.00	40.33	30.00
		CD = 14.67			**CA = 70.33**	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement.

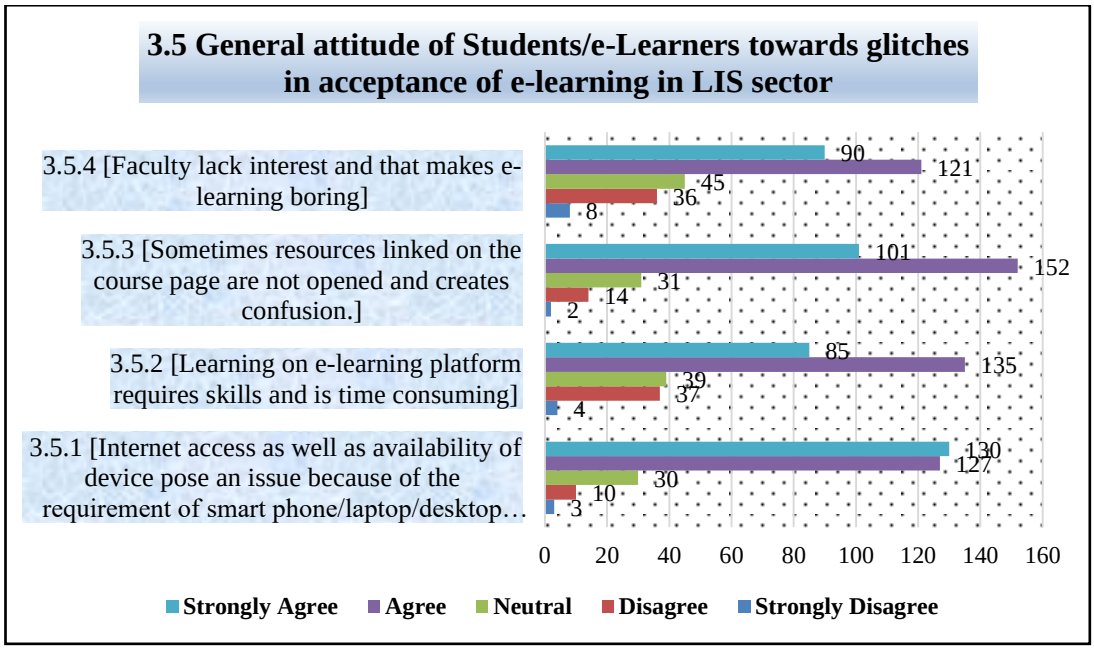

Figure 5.2.3.5Graphical Representation of the general attitude of Students/e-Learners towards glitches in acceptance of E-learning in the LIS sector

5.2.3.6 General attitude of Students/e-Learners towards evaluation and feedback of E-learning

Table 5.25 represents the general attitude of Students/e-Learners towards evaluation and feedback of E-learning. Responses in the table have been analyzed into: agreement (CA = AG+SA), disagreement (CD = SD+DA) and the neutral (NE) options.

The statement 3.6.1 "The feedback received after evaluations were timely and encouraged the continuation of courses through E-learning." has 80.33% (241) respondents in favour of the statement, which means that most of the learners received timely feedback after evaluation which is an encouraging step for further participation in such E-learning courses. Only a small number around 2.33% (7) disagreed with the statement and didn't get timely feedback, while 17.33% (52) were neutral about feedback.

The statement 3.6.2 i.e., "All evaluations were given sufficient time for submission" has 78.34% of respondents in agreement that the time for submission of evaluations was adequate, only 3.00% were in disagreement who felt shortage of time while 18.67% were neutral about the time provided.

In the statement 3.6.3 which states, “I received the recognized e-certificate after completion of online learning for career progression/ promotions” 72.66% of respondents agreed for receiving the completion certificate which was useful/needed for the progress of their career, 5.66% didn’t receive the certificate for promotion and disagreed, while 21.67% remained neutral.

However, their response to next statement 3.6.4 i.e., “The online help features of the course have been very effective” has 76.33% of respondents in agreement revealing that online help was very useful regarding the E-learning course content, 5.33% who are in disagreement were not helped by online help content, while 18.33% were neutral, not having any issue about the online help feature.

Figure 5.2.3.6 shows the graphical representation of these statements.

Table 5.25 General attitude of Students/e-Learners towards evaluation and feedback of E-learning

(Total Resp. = 300)

S. No.	Statement	SD	DA	NE	AG	SA
3.6.1	The feedback received after evaluations were timely and encouraged the continuation of courses through E-learning	0	7	52	136	105
		0.00%	2.33%	17.33 %	45.33 %	35.00 %
		CD = 2.33%			**CA** =80.33%	
3.6.2	All evaluations were given sufficient time for submission	1	8	56	128	107
		0.33%	2.67%	18.67 %	42.67 %	35.67 %
		CD = 3.00%			**CA** =78.34%	
3.6.3	I received the recognized e-certificate after completion of online learning for career progression/ promotions	4	13	65	112	106
		1.33%	4.33%	21.67 %	37.33 %	35.33 %
		CD = 5.66%			**CA** =72.66%	
3.6.4	The online help features of the course have been very effective	0	16	55	124	105
		0.00%	5.33%	18.33 %	41.33 %	35.00 %
		CD = 5.33%			**CA** =76.33%	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement.

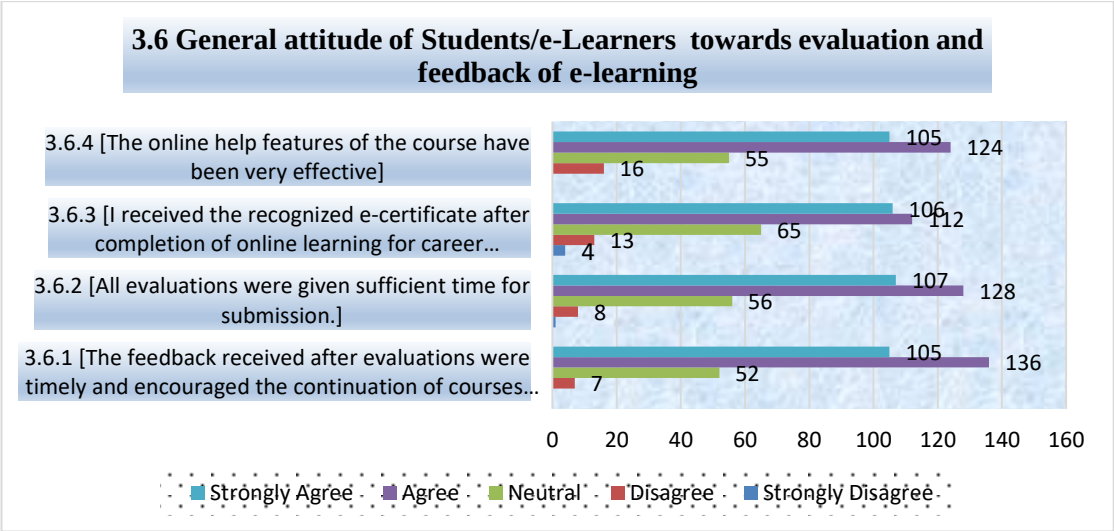

Figure 5.2.3.6Graphical Representation of the general attitude of Students/e-Learners towards evaluation and feedback of E-learning

5.2.3.7 General attitude of Students/e-Learners towards integration of e-resources with the Learning Management System

Table 5.26 predicts the general attitude of students/e-learners toward the integration of e-resources with the Learning Management System. To analyze the responses, the data has been gathered into: agreement (CA = SA+AG) option, disagreement (CD = DA+SD) option and the neutral (NE) option.

The question is divided into four statements 3.7.1, 3.7.2, 3.7.3 and 3.7.4 to assess the attitude of respondents toward integration of e-resources with the Learning Management System.

The statement 3.7.1 “The OPAC needs to be integrated with the course on the Learning Management System so that students can search library collection directly from the LMS itself” has 88.67% (266) respondents in agreement, clearly indicating the need for integration of online library facility with the LMS. Only a small number of 1.00% (3) disagrees with the statement and were having the view of no need to integrate, while 10.33% (31) were neutral in both aspects.

The statement 3.7.2 i.e., “Resources from online databases/resources must be integrated with the course on the Learning Management System” has 89.00% of respondents in agreement reflecting the necessity of availability of online databases/resources on the LMS along with the course so that it is easy to navigate through the vast knowledge available online for better understanding, 2.67% in disagreement, while 8.33% were neutral.

Whereas, in the statement at 3.7.3 i.e., "Discovery search must be available integrating class resources, library resources, databases and e-resources so that students can find the information and resources on a single click from the LMS itself" 85.66% of respondents were in agreement, 3.66% in disagreement while 10.67% were neutral, specifying that multiple search options are much needed for the students to be available preferentially on single click side by side with the LMS.

For the next statement 3.7.4 i.e., "Librarians have not taken initiating steps for the integration of course content with the library's OPAC and e-resources" 67.33% of respondents were in agreement with this statement that Librarians lack the urge to take the launching step for the above-mentioned integration of courses with OPAC and e-resources, only 13.67% were of disagreement while 19.00% were neutral about this statement.

Figure 5.2.3.7 shows the graphical representation of the same.

Table 5.26 General attitude of Students/e-Learners towards integration of e-resources with the Learning Management System

(Total Resp. = 300)

S.No.	Statement	SD	DA	NE	AG	SA
3.7.1	The OPAC needs to be integrated with the course on the Learning Management System so that students can search library collections directly from the LMS itself	0	3	31	125	141
		0.00%	1.00%	10.33%	41.67%	47.00 %
		CD = 1.00%			**CA** = 88.67%	
3.7.2	Resources from online databases/resources must be integrated with the course on the Learning Management System	3	5	25	149	118
		1.00%	1.67%	8.33%	49.67%	39.33 %
		CD = 2.67%			**CA** =89.00%	
3.7.3	Discovery search must be available integrating class resources, library resources, databases and e-resources so that students can find the information and resources on a single click from the LMS itself	1	10	32	121	136
		0.33%	3.33%	10.67%	40.33%	45.33 %
		CD = 3.66%			**CA** = 85.66%	
3.7.4	Librarians have not taken initiating steps for the integration of course content with the library's OPAC and e-resources	11	30	57	102	100
		3.67%	10.00%	19.00%	34.00%	33.33 %
		CD = 13.67%			**CA** = 67.33%	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement.

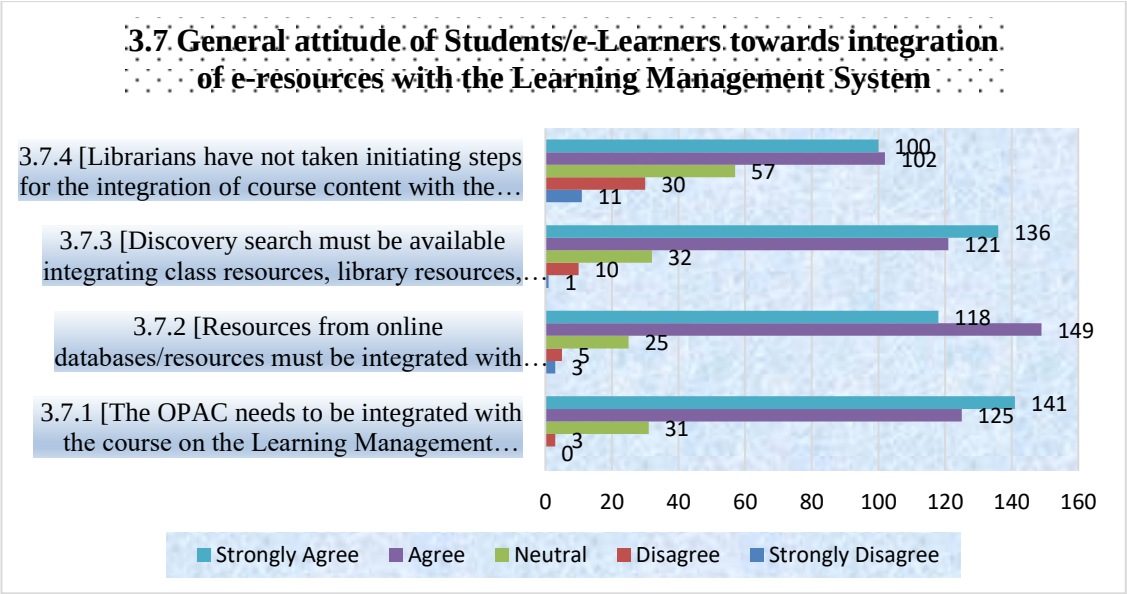

Figure 5.2.3.7Graphical Representation of the General attitude of Students/e-Learners towards integration of e-resources with the Learning Management System

5.2.3.8 General attitude of Students/e-Learners towards overall E-learning course/program (s) experience

Table 5.27 represents the general attitude of students/e-learners towards the overall E-learning course/program (s) experience. Responses in the table have been analyzed into: agreement (CA = AG+SA), disagreement (CD = SD+DA) and the neutral (NE) options.

The query has been subdivided into four statements 3.8.1, 3.8.2, 3.8.3 and 3.8.4 to determine the view of the respondents toward overall E-learning course/program (s) experience.

Statement 3.8.1 “Completion of the course was clearly outlined” has 78.33% (235) respondents in favour of the agreement, stating that they were informed and were aware of the completion of the course as it was mentioned. Only a small number of 3.67% (11) disagreed about a clear outline of the same, while 18.00% (54) were neutral.

The statement 3.8.2 i.e., “Topics of the course were clearly presented” has 84.00% of respondents in agreement indicating precise and clear presentation of the course, 3.00% disagreed while 13.00% were neutral about the clear presentation.

Whereas, in the statement at 3.8.3 i.e., “The course was properly formatted” 77.33% of respondents agreed about the clear and precise format of the course, only 2.67% disagreed while 20.00% were neutral about the format of the course.

Their response to the next statement 3.8.4 i.e., “The content of the course was up to date” shows that 83.00% who agree, considered the content to be the latest while only 1.33% who are in disagreement didn’t consider so and 67% were neutral about this point.

Figure 5.2.3.8 shows the graphical representation of the same.

Table 5.27 General attitude of Students/e-Learners towards overall E-learning course/program (s) experience

(Total Resp. = 300)

S. No.	Statement	SD	DA	NE	AG	SA
3.8.1	Completion of the course was clearly outlined	0	11	54	136	99
		0.00%	3.67%	18.00%	45.33%	33.00%
		CD = 3.67%			**CA = 78.33%**	
3.8.2	Topics of the course were clearly presented	0	9	39	150	102
		0.00%	3.00%	13.00%	50.00%	34.00%
		CD = 3.00%			**CA = 84.00%**	
3.8.3	The course was properly formatted	2	6	60	127	105
		0.67%	2.00%	20.00%	42.33%	35.00%
		CD = 2.67%			CA = 77.33%	
3.8.4	The content of the course was up to date	1	3	47	143	106
		0.33%	1.00%	15.67%	47.67%	35.33%
		CD = 1.33%			CA = 83.00%	

SA = Strongly Agree; AG =Agree; NE = Neutral; DA = Disagree; SD = Strongly Disagree: CA. = Combined Agreement; CD = Combined Disagreement.

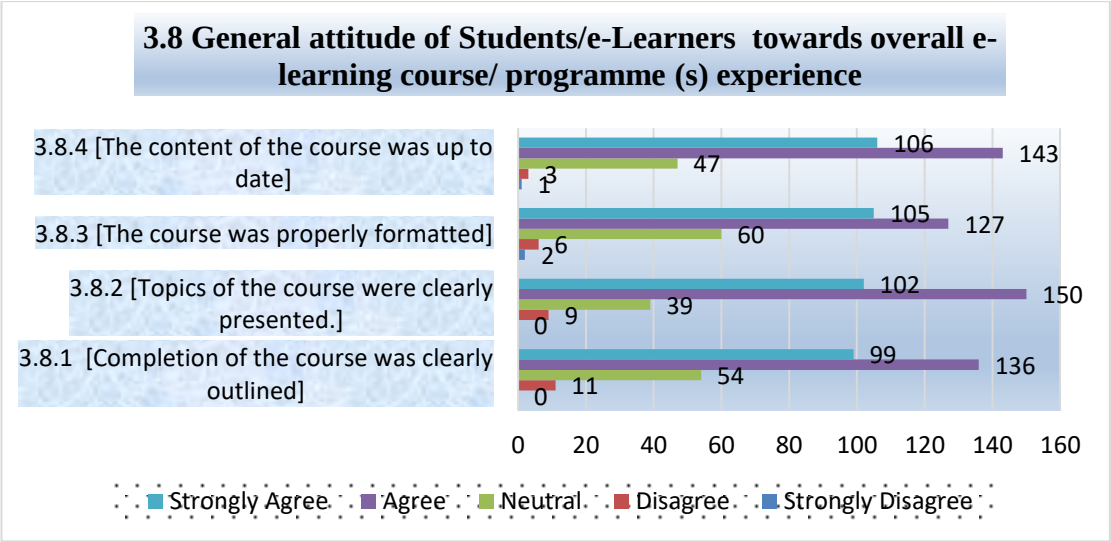

Figure 5.2.3.8Graphical Representation of the General attitude of Students/e-Learners towards overall E-learning course/program (s) experience

5.2.3.9 Any challenge(s), faced by LIS e-learners/students in E-learning of LIS:

There are many challenges, which have been faced by LIS e-learners/students in handling and supporting E-learning in the Library and Information Science sector in India. A descriptive question was put forward and the varying responses received have been summarized below:

- Everyone is not living in the urban area, and in rural areas connectivity is a big problem because of the network issue.
- Many students have theoretical knowledge but they lack practical knowledge so are not confident in practicals.
- Meagre knowledge of computers hinders the accessibility of e-resources
- Online classes are well understood but not so well as are the open classes.
- The matter is not available in the Hindi language. So there is an issue with language and study materials.
- Online courses use more formal language, which is difficult to understand.
- Lack of interest in learners
- Students must be taught about E-learning platforms during academics. Proper guidance should be given to students about tools, techniques and platforms of E-learning.
- Electricity problem besides Internet is a major issue due to lower bandwidth

as well as technical issues are also there.

- Still, I am not getting the job.
- Classes are Teacher centred sometimes.
- Network issues, participant disturbance, discipline issues, content misleading sometimes, etc.

5.2.3.10 LIS e-learners/student's overall comment about E-learning in Library and Information Science sector in the country:

To know, their overall impression of E-learning in the Library and Information Science sector in the country, the LIS e-learners/students were asked a descriptive question. The responses received were varied and are summarized below:

• In the COVID pandemic E-learning is the best.
• The online learning platform is the best. It should be emphasized in India along full competence and full-fledged strategy.
• Helpful in library arrangement
• It's good but the offline way is very good
• E-learning of any course like Degree Diploma should be promoted so as to help the working students to add novel information and opportunity in their academics.
• good but not help full for all time
• E-learning makes study easier, fun, very effective and peaceful too.
• Some resources are still not made available. Some information is wrongly presented. Practical knowledge must be made available more than theoretical knowledge.
• As everyone is facing the pandemic it's extremely essential to create awareness regarding E-learning, especially in isolated or rural areas. Here it's difficult to access E-learning due to the lack of infrastructure so it's important to find out new alternatives for making the E-learning system accessible to them (rural area people).
• Not very well. Online teaching can't replace physical classes.
• More awareness is required about online courses. There must be conduction of free certificate courses by UGC/ AICTE for increments and promotion, and priority should be given to persons with such certificates in recruitment selections.
• Very well, very good questionnaire ... effective questions
• Overall, E-learning is a necessary part of learning. It is complementary to physical learning and has to be initiated everywhere.

5.2.3.11 LIS e-learners/student's suggestions for further improvement of E-learning in the Library and Information Science sector in the country:

As the last question, the LIS e-learners/students/respondents were asked to give their suggestions for further improvement of E-learning in the Library and Information Science sector in the country. The responses received from the LIS e-learners/students for this descriptive question are given below:

- The syllabus should be formed properly for learning of LIS studies.
- Online mode is the best, but the students must be provided a better platform surely so that they have a better future.
- Managing the high speed of internet and quality teachers will help in studies.
- E-learning should be promoted throughout the country so that all the students can take advantage of it, from anywhere in the country or abroad. It will increase attendance in the class and the students will interestingly participate on their own.
- Consistency and proper guidelines should be there.
- Learning the usage of Library Automation Software, Remote Access Software, Google Meet, Powerpoint Presentation and Websites for E-Resources.
- Create and provide E-learning courses and inform about the available courses to the users.
- The online course should be in all the languages of India. So, all students can access easily and understand the content of the course.
- Online classes should be recorded in a natural environment, artificial classroom creates difficult situations.
- Improvements like, Concept of the Internet for every student must be initiated in place of giving scholarships in the form of money. The government must provide tools and services to students so that they can access digital Education in better form.
- More certificate courses, free evaluation and frequent certificate programs on

emerging technology applications in the field of LIS like Prof. Madhusudhan Margam's video lectures, Ramesh c gaur sir's, and Nabi Hasan sir's videos in courses should be included.

- Use of some additive material, more efficient resources and practical examples in the class too.
- Make a standard of participation, Improve the presentation quality, control the participant's disturbance, content should be understandable to all and appropriate ppt must be used.

5.3 Conclusion:

In this way, the detailed data gathered from responses to both the questionnaires for teachers/experts/professionals and the students/e-learners/users have been analyzed and the interpretations collected, about the various prospects of E-learning including its benefits, shortcomings, obstacles faced, their probable solution and the future relevance and suggestions to improve E-learning in LIS sector in India. The conclusions drawn have been presented in Chapter-6, which follows.

Chapter - 6

Findings, Suggestions and Conclusion

6.0 Introduction

The present study tried to explore and evaluate the "E-learning initiatives in Library and Information Science sector in India". This chapter summarizes and concludes the result of analysis done to understand the potential of E-learning, find out E-learning practices and study various aspects of E-learning in the LIS sector in India for both teachers and the students. Data was assembled from the teachers/experts/professionals and the students/e-learners of the LIS sector from different parts of India, through questionnaires and the various modes, manners, features and also challenges encountered in E-learning in the LIS sector in India are briefed in form of observations (findings) along with suggestions and conclusion.

The study was done from responses received for the above-mentioned questionnaires. There were 400 respondents, out of which 100 were teachers/experts/professionals while 300 were students/e-learners from the LIS sector in India. The various suggestions and conclusions arrived at after the analysis and interpretation of data obtained from the respondents have been described under five headings as per the objectives of our research study which are as follows: -

6.1 Potentials of E-learning in the Library and Information Sector

Understanding of the potential of E-learning in the LIS sector has been dealt with in this section with reference to the teachers/experts/professionals as follows:-

- Age incidence shows that the maximum numbers of teachers/experts/ professionals were in the age group 35-45 years. The gender ratio for teachers/experts/professionals showed a majority (78%) of the male respondents.
- Most of the teachers/experts/professionals had an experience of E-learning in the LIS sector in India for >15 years and 97% of them believe that E-learning is useful in the LIS sector.

- In view of the importance and need of E-learning, most teachers/experts/ professionals feel that E-learning conveys advanced knowledge to the students/users and provides a better academic experience leading to improved academic results, thus proving advantageous in terms of feasibility, cost, and time effectiveness.
- Regarding the effectiveness of E-learning pedagogy in the LIS sector, most of the teachers /experts/professionals are interested in E-learning and consider it a quick and efficient way to search any topic of interest as well as to teach from a place of their convenience, thus helping in the proper and efficient management of the teaching work.
- For the attitude about searching and accessing the E-learning content most, teachers/ experts/professionals felt it easier to navigate and search the digital content through E-learning portals/ websites, which makes teaching more interesting. Most of them have uploaded diverse contents on the online portals and felt free to access required information and get in touch with peers or students as per their convenient time and location.
- In analyzing the view of teachers/experts/professionals for the different methods of E-learning only 47.76% were convinced that E-learning courses will replace present-day offline lectures. On the other hand, most of them were using online discussion forums and mailing lists and felt that synchronized E-learning provides a better opportunity to serve learners in comparison to asynchronized E-learning with a limited scope of interaction.

The understanding of potentials of E-learning in the LIS sector concerning students/e-learners is as follows:-

- The majority of student/e-learner respondents were of the age group 25-35 years. Gender ratio among students/e-learners showed marginal dominance of the male gender (57%) as compared to female (43%) gender respondents.
- In view of the frequency distribution from states/ union territories of the student/e-learner respondents, the highest number of respondents was from Rajasthan, and the majority of them were having Master's degrees in LIS.

- Further evaluating the concept of E-learning amongst student/e-learner respondents, majority of them attended only one E-learning course/ program, most of them had participated in webinars, online lectures, etc. and their prime target to join E-learning was to update their skill/ knowledge simultaneously continuing their education and learning during the COVID-19 period. Almost all the students/e-learners were aware of E-learning possibilities in their course/ career so most of them had plans to join another E-learning course/ program of LIS in near future.
- Regarding the effectiveness of E-learning pedagogy in the LIS sector for the students/e-learners, most of them found E-learning interesting over printed books, it allows learning at their own pace as well as working simultaneously with learning through synchronous/ asynchronous or both modes. But most of them were suspicious about the quality of E-learning because of the lack of proper quality control in it.
- For the attitude about searching and accessing the E-learning contents among the students/e-learners, most of them have downloaded e-contents from LIS portals/ websites for learning; have found E-learning tools/ technologies/ activities easier than the printed books/ classroom activities. They ultimately feel an enhancement of learning due to the immediate availability of information in E-learning.
- In analyzing the view of students/e-learners for the different methods of E-learning, they mostly feel that E-learning courses will replace traditional learning in near future; they however feel that both methods are equally important for better academic performance. They also feel the use of synchronized E-learning can be better in conditions of high bandwidth internet access, while that of asynchronized E-learning when to study as per our choice and pace.

6.2 E-learning practices followed in the Library and Information Science sector in India.

With reference to the E-learning practices followed in the LIS sector in India, the teachers/experts/professionals have performed the following:-

- Most of them are engaged in E-learning activities for teaching or providing services in the LIS sector. They have played different roles in the E-learning activities like supporting e-learners, handling tools and technologies of E-learning, delivering e-contents through LMS, conducting online examinations and so on in the LIS sector. Most of them have conducted awareness programs of E-learning for LIS students/ e-learners.

The students/e-learners have performed E-learning practices as follows:-

- Almost all of them have joined one or the other awareness program/ webinar/ resource of E-learning in LIS, have also joined/ attended E-learning course/ program/ webinar on E-learning and also the delivery of e-resources from theirs or other institutes/universities, and have participated mostly in the continuing education programs eg. Webinars, Seminars, conferences, workshops, etc. They are aware of almost all the approaches to E-learning in LIS mostly the content available on E-learning portals, platforms, websites and the e-resources/ e-books. The important point to note is that they have accessed the E-learning course from both, the home and the work computer/ laptop, but mostly from the home system.

6.3 Various aspects of E-learning in the institutions offering E-learning in LIS in India.

Different aspects of E-learning in the institutions offering E-learning in LIS in India have been gathered concerning teachers/experts/professionals, as follows:-

- Almost 82% of teachers/experts/professionals were aware of and were having knowledge of OERs for use in E-learning, however, only 62% have created e-content(s) for the use of LIS students/learners and most of them have used E-learning portals/platforms/ applications for supporting and teaching students/users of LIS.
- About the contribution of content by teachers/experts/professionals on the E-learning portal/ platform many of them, about 86% have contributed to content/ delivery (asynchronized courses) as compared to only 52% for synchronous courses/ virtual learning.

- The majority of the teachers/experts/professionals have a working knowledge of LMS with Google Classroom being the most popular LMS among them. Many of them have used social tools and technologies of E-learning other than LMS, among which LinkedIn and Telegram are the most popular E-learning tools for the delivery of content.
- The main benefits rated by the teachers/experts/professionals for students from E-learning facilities at the institutes are: Making overall learning more effective, improvement in knowledge sharing and final results of the students. The available E-learning resources, which meet curriculum requirements and the student's needs, are e-group discussions, e-presentations and e-examination materials as rated by them. As per the responses received the maximum number of E-learning resources was made available through the library website and the institute website itself.
- In the view of teachers/experts/professionals for handling and operating the E-learning tools and technologies almost all feel confident in using them in teaching and most of the teachers/ experts/ professionals feel it easy to support the students/ users electronically. Only some (43%) faced difficulty in sharing/ delivering e-resources to the students/ users but majority of them solved the problems on their own.
- About the curriculum design for E-learning, almost all of the teachers/experts/ professionals felt to integrate online courses during designing of the curriculum, many felt a lack of proper dynamic course curriculum to conduct teaching in online mode, about 46% feel that E-learning system has yet not been included in the LIS curriculum in India and most of them felt that the university/ institute provides special curriculum tasks for supporting E-learning in LIS.
- When considering the evaluation and assessment of E-learning majority of the teachers/experts/professionals accept that online practice exams, webinars and live lectures were given to the students, many felt that post-evaluation mechanisms for E-learning were poor, and most of them felt there has been a need of external support for up-gradation and maintenance of E-learning system and about the lack of clarity in the evaluation methods.

- Regarding integration of e-resources with LMS majority of the teachers/experts/professionals have the view that OPAC should be integrated with the course on LMS, almost all feel that online resources and databases must be integrated with the course on LMS, the discovery search must be available from the LMS itself and training for using LMS must be increased.

Different aspects of E-learning in the institutions offering E-learning in LIS in India with respect to students/e-learners are as follows:-

- Most of the students/e-learners (74%) were having knowledge about OERs for E-learning and many have described the usefulness of OER's also, almost all (90%) respondents have used the E-learning portals/ programs/ applications in LIS for learning mostly for their study/ work, from which the Swayam portal was the most frequently (85%) used one. For content/ delivery e-pgpathshala was used by 80% of the respondents and most of them have used one or the other portal for content/ delivery. About 87% of the students/e-learners have used the E-learning tools and technologies and Telegram, Whatsapp, Google Drive and Facebook were the most frequently used ones with the highest number of students/e-learners using them.
- For handling and operating the E-learning tools and technologies, almost all students/e-learners felt confident in using them for studies, most of them felt that interaction with a peer group is easier online and it helps to learn, that they can learn while working through E-learning and thus have completed their E-learning course successfully.
- Regarding evaluation and feedback of E-learning majority of the students/e-learners felt that the feedback after evaluation was received timely which encouraged them to continue E-learning courses, most of them also felt that the time given for submission of the evaluations was sufficient, and they received recognized e-certificate for the completion of online learning which might help in their promotion/ progression and believed that online help feature was effective for the E-learning course.
- Regarding integration of e-resources with LMS, almost all students/e-learners felt that OPAC, as well as online resources and databases, should be integrated with the course on LMS. The majority of them also felt that the

discovery search must be made available with a single click from the LMS itself and mostly they feel that librarians have not taken initiating steps for the integration of OPAC and e-resources in the LIS course content.

6.4 Barriers encountered in employing E-learning in LIS in India.

There are numerous barriers and challenges encountered in employing E-learning in the LIS sector in India and they have been enumerated briefly as follows:-

In views of the teachers/experts/professionals:-

- The glitches in acceptance of E-learning as felt by teachers/experts/professionals are that majority of them feel that the cost of internet connection and of the devices to access E-learning (Computer, Laptop, Smartphone, etc.) pose a challenge in teaching through E-learning. More than 50% feel that the creation and maintenance of E-learning portals and LMS interfaces is a difficult task and so it forms another barrier.
- Considering the management and financial challenges of E-learning, most of the teachers/experts/professionals feel that E-learning programs presently lack proper managerial support, they need proper budgeting and funding as well as sponsorship for the E-learning programs. The traditional mindset of learning also poses a hurdle for E-learning in the LIS sector.
- The different views and comments given by the respondent teachers/experts/professionals about challenges faced in E-learning have been briefed as follows:-

- Lack of awareness.
- Poor Electricity, insufficient Infrastructure and Internet problem.
- Enthusiasm and motivation of students are less in online learning. They lack sincerity.
- Low degree of motivation among students and teachers.
- Lack of courses, and e-books in LIS.
- Closed access.
- Need for a Strong LMS and evaluation system.

- Poor infrastructure and workload management.
- Lack of skills among the recipients
- Issue of computer literacy among LIS students
- Systems and platforms are paid and there is a lack of awareness and willingness.
- Learners are not aware of E-learning facilities and Teachers are not competent in using E-learning tools and technologies. Needs training for Teachers and students to adopt it.
- To run any type of online course, Librarians need trained and supportive staff. So need human resources with efficient skills.
- The pandemic of Covid-19 has altered the reception as well as catering of education to the public. So newer changes must be sought out to solve the difficulties encountered. The education providers are hesitant about newer E-learning initiatives as they have long been using the traditional methods. But the condition has forced us to accept and adapt to the newer innovations. The introduction of such new innovatory will ultimately benefit the education sector.

In views of the students/e-learners:-

- The glitches in acceptance of E-learning as felt by students/e-learners are that most of them feel that access to the internet and availability of devices with multimedia (computers, laptops and Smartphones) are costly tasks. They also feel that learning/ study on the E-learning platform is a task that consumes time and requires skill. Most students/e-learners feel that many times the resource pages are not opened or are not assessable leading to wastage of time and creating confusion, many of them feel that the faculty presently lack interest in E-learning, making it a boring task.
- The student/e-learner respondents were suspicious about the quality of E-learning due to the absence of proper quality control.
- The different views and comments given by the respondents about challenges faced by LIS students/e-learners in E-learning have been briefed as follows:-

- Connectivity in urban and rural areas is a big problem because of the network issue.
- Many students have theoretical knowledge but they lack practical knowledge so are not confident in practical aspects.
- Meagre knowledge of computers hinders the accessibility of e-resources.
- Online classes are well understood but not so well as are the open classes.
- Online courses use more formal language which is difficult to understand. The matter is not available in the Hindi language. So there is an issue with language and study materials.
- Lack of interest in learners
- Students are not taught about E-learning platforms during academics. Proper guidance should be given to students about tools, techniques and platforms of E-learning.
- Electricity problem besides Internet is a major issue due to lower bandwidth as well as technical issues is also there.
- Still, I am not getting the job.
- Classes are Teacher centered sometimes.
- Network issues, participant disturbance, discipline issues, content misleading sometimes, etc.

6.5 Conclude and suggest measures to make E-learning effective in LIS in India.

In this section, we will deal with the conclusion of our findings and suggestive measures for making E-learning in the LIS sector more effective.

The different suggestions and concluding remarks about making E-learning more effective in LIS with respect to the teachers/experts/professionals are:-

- About the future perspectives of E-learning, the consensus was that most of the teachers/experts/ professionals believe that there would be a benefit in the efficiency of teaching and learning through online learning, skill-based courses or special training will make online/ E-learning more effective for the

students, E-learning is an additional task for the teachers/experts/professionals besides their routine work and so will hamper the normal work of the department/ library. But still, most of them felt that E-learning is useful in blended learning.

- Views and comments of the teachers/experts/professionals about the overall experience of E-learning in LIS in India are as follows:-

- It complements traditional learning. We should adopt it as soon as possible as a blended learning approach is more beneficial.
- E-learning in Library and Information Science sector is on an increasing trend. More courses are required.
- In a developing country like India, the population is a prime issue, so we cannot cope with E-learning. Traditional learning is more useful to teach in the classroom.
- There are excellent facilities at CSIR-NAL Bangalore, so no difficulty or challenge is faced. More the digital, the better for research.
- COVID 19 pandemic situation showed us how to cope with the technology and E-learning system, and every institute has tried its best for the students.
- The traditional mindset of faculty needs to be changed as in the COVID world E-learning is useful to all.
- E-learning should be started in the initial stages at the university level.
- Reasonably good in terms of awareness and transit but excellence is to be gained.
- All Universities, Govt. Institutions must encourage E-learning. The future is digital and E-learning must be part and parcel of LIS.
- It has to be used to supplement the face-to-face offline method of teaching.
- It is good practice in our subject but for practical papers, it is very difficult to teach papers like classification practical, cataloging practical, etc.
- In the future, the scope of E-learning in Library and Information Science will be much more effective than traditional learning.

- Today's scenario shows that gradually all faculty have adopted blended learning, so library science professionals should strongly frame our LIS syllabus in E-learning mode.
- Similarly, suggestions of the teachers/experts/ professionals about further improvement of E-learning in LIS in India are as follows:-
- The librarian should be active in any case and more participation is needed from all teachers, students and administrators.
- There is a need to design and develop E-learning portals, platforms and ICT infrastructure with software in LIS quickly.
- If we want E-learning in LIS, firstly we should improve the infrastructure related to E-environment in the country.
- Subscribe more to E-resources for E-learning which needs more budget.
- Awareness about E-learning and its benefits is a must for the teacher and the learner fraternity and a more focused approach is required.
- When regular courses are going on, additional online teaching will support the students.
- The curriculum should include E-learning as a compulsory component. The department should develop a web portal to facilitate the students with E-learning resources, power points, lectures, etc.
- More funding and.80:20 (offline: online) blended teaching will be appreciated.
- Government support, University budget allocation, sharing of network resources, Sharing of E-Resources, Gateways and Portals for resources, and knowledge sharing are required.
- Enhance the infrastructural facilities for both teachers and students. The network problem is a common issue for both teachers and students.
- Learners and teachers should be aware that there is a necessity to take interest in adopting E-learning tools and technologies.
- Developing E-learning courses and E-Content Material is today's need of the hour. Thanks.

- During COVID-19, the learners, practitioners, and other stakeholders in education were suffering, as it lead to the suspension of physical classes and loss of physical interaction of the learners with teachers and among themselves. Under these conditions, E-learning, online learning, and the use of ICT were essential.

Similarly, suggestions and concluding remarks about making E-learning more effective in LIS according to the students/e-learners are:-

- About the overall experience of E-learning course/ program in LIS, the consensus was that majority of students/e-learners feel that completion of the course was clearly outlined, that there was a clear presentation of the topics in the course, that there was proper formatting of the course and that the content of the course was up to date.
- Views and comments of the students/e-learners about the overall experience of E-learning in LIS in India are as follows:-

- In the COVID pandemic E-learning is the best. As everyone is facing the pandemic it is extremely essential to create awareness regarding E-learning, especially in isolated or rural areas. Here it is difficult to access E-learning due to a lack of infrastructure so it is important to find out new alternatives for making the E-learning system accessible to the rural area people.
- The online learning platform is the best. It should be emphasized in India along with full competence and full-fledged strategy.
- Helpful in library arrangement
- Not very well. Online teaching can't replace physical classes. It is good but the offline way is very good.
- E-learning of any course like Degree Diploma should be promoted so as to help the working students to add novel information and opportunity in their academics.
- E-learning makes study easier, fun, very effective and peaceful too.
- Some resources are still not made available. Some information is wrongly presented. Practical knowledge must be made available more than theoretical knowledge.

- More awareness is required about online courses. There must be conduction of free certificate courses by UGC/ AICTE for increments and promotion, and priority should be given to persons with such certificates in recruitment/ selections.
- Very well, very good questionnaire ... effective questions
- Overall, E-learning is a necessary part of learning. It is complementary to physical learning and has to be initiated everywhere.

- Similarly, suggestions of the students/e-learners about the enhancement of E-learning in LIS in India are as follows:-
  - The syllabus should be formed properly for learning in LIS studies.
  - Online mode is the best, but the students must be provided a better platform surely so that they have a better future.
  - Managing high-speed internet and quality teachers will help in the studies.
  - E-learning should be promoted throughout the country so that all the students can take advantage of it, from anywhere in the country or abroad. It will increase attendance in the class and the students will interestingly participate on their own.
  - Consistency and proper guidelines should be there.
  - Learning the usage of Library Automation Software, Remote Access Software, Google Meet, PowerPoint Presentation and Websites for E-Resources is necessary.
  - Create and provide E-learning courses and inform users about the available courses.
  - The online course should be in all languages of India. So, all students can access easily and understand the content of the course.
  - Online classes should be recorded in a natural environment, artificial classroom creates difficult situations.
  - Improvements like the concept of the internet for every student must be initiated in place of giving scholarships in the form of money. The

government must provide tools and services to students so that they can access online education in a better form.

- More certificate courses, free evaluation and frequent certificate programs on emerging technology applications in the field of LIS like Prof. Madhusudhan Margam's video lectures, Ramesh c gaur sir's, and Nabi Hasan sir's videos should be included in courses.
- Use of some additive material, more efficient resources and practical examples in the class too.
- Make a standard of participation, Improve the presentation quality, control the participant's disturbance, content should be understandable to all and appropriate ppt must be used.

6.6 Conclusion

The result/conclusion arrived at from the scrutiny and elucidation of the gathered data from responses by the teachers/students, and the literature reviewed is as under:

- The growth rate of E-learning is highest in India throughout the world.
- The major E-learning / digital initiatives of the Government of India in higher education are Swayam, SwayamPrabha, e-GyanKosh, Flexilearn, NPTEL, CEC, VLE, e-PG Pathshala, e-SS, Diksha, Shodhgangotri, NAD, NDLI and many more.
- The Swayam portal hosts many MOOC courses in the LIS sector, while SwayamPrabha hosts LIS courses through DTH channels.
- Initiatives of E-learning in the LIS sector have been started in India by IGNOU, TISS, NIOS, NSOU, CBSE, UPRTOU, and many other Universities.
- These E-learning initiatives in the LIS sector are in form of e-PG Pathshala, LDL, Lislearn, Vidyanidhi, e-GyanKosh, and so on.
- Both teachers and the students in the LIS sector are freely and confidently operating and using the E-learning systems.

- They are aware of the benefits and shortcomings of this system and have listed them under interpretations and barriers of E-learning in LIS, for which they have also proposed their valuable suggestions.

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Appendixes

Appendix – I

Research Questionnaire for Questionnaire for LIS Teachers/ Professionals

Questionnaire for LIS Teachers/ Professionals

Respected Sir / Madam,

A warm welcome and greetings.

Myself Neelam Kabra, a research scholar in the Department of Library and Information Science, Vardhman Mahaveer Open University Kota.

I am undergoing my doctoral research under the guidance of Professor (Dr) Dinesh Kumar Gupta, Ex Professor in the Department of Library and Information Science, Vardhman Mahaveer Open University, who is presently working in The Central University of Haryana on post of Professor in the Department of Library and Information Science.

I have prepared a questionnaire for the related survey of my research work entitled " An Analytical Study of e-Learning initiatives in Library and Information Sector in India", and will be sending you the same questionnaire. The data from this questionnaire is to be obtained from LIS Teachers / Professionals who are involved in e-Learning from various Universities / Platforms throughout the country including you. The information provided by all of you will be used only for the research work and will be kept strictly confidential.

It is my humble request to you to kindly respond positively the above questionnaire as early as possible. Your cooperation is a much-needed step in the completion of my research work.

Requesting you once again to kindly respond the questionnaire positively as soon as possible.

Thanking you in advance for your kind cooperation.

Yours Sincerely,

Neelam Kabra,
Research Scholar,
Department of Library and Information Science,
Vardhmaan Mahaveer Open University, Kota.

* Required

1. Email *

Part – I: Demographical Information

2. 1.1 Your Name (Optional)_____

3. 1.2 Your Email ID (Optional) _____

4. 1.3 Age Group (Years) (Please tick √) *

Mark only one oval.

- ◯ 25-35
- ◯ 35-45
- ◯ 45-55
- ◯ 55 to Above

5. 1.4 Gender *

Mark only one oval.

- ◯ Male
- ◯ Female

6. 1.5 Your Professional Experience *

Mark only one oval.

- ◯ Less than 5 years
- ◯ 5 to 10 years
- ◯ 10 to 15 years
- ◯ More than 15 years

Part – II: Background Knowledge on Concept of E-learning

2. 1.1 Your Name (Optional)_____

3. 1.2 Your Email ID (Optional) _____

4. 1.3 Age Group (Years) (Please tick √) *

Mark only one oval.

- ◯ 25-35
- ◯ 35-45
- ◯ 45-55
- ◯ 55 to Above

5. 1.4 Gender *

Mark only one oval.

- ◯ Male
- ◯ Female

6. 1.5 Your Professional Experience *

Mark only one oval.

- ◯ Less than 5 years
- ◯ 5 to 10 years
- ◯ 10 to 15 years
- ◯ More than 15 years

Part – II: Background Knowledge on Concept of E-learning

11. 2.4 Have you conducted any awareness program of e-learning for LIS students/learners? *

Mark only one oval.

- ◯ Yes
- ◯ No

12. If yes, please give details:

13. 2.5 Do you have knowledge about Open Educational Resources (OERs) for use in e-learning? *

Mark only one oval.

- ◯ Yes
- ◯ No

14. If yes, please describe about usefulness of OERs in e-learning practices:

15. 2.6 Have you created any e-content(s) for LIS students or users for their study, learning and research purposes? *

Mark only one oval.

- ◯ Yes
- ◯ No

16. If yes, please give details and web-link of the e-resource(s):

_____

_____

_____

_____

_____

17. 2.7 Have you used any e-learning platforms/portals/applications for supporting users/ teaching? *

Mark only one oval.

- ◯ Yes
- ◯ No *Skip to question 21*

Cont....

18. 2.8 Have you contributed any content (such as: text/ Video/Quizzes, etc.) on following e-learning platform/portals:
(A) Platforms/ Portals for synchronised online courses/ virtual education)

Check all that apply.

- ☐ SWAYAM Portal
- ☐ SWAYAM Prabha
- ☐ Spoken Tutorial
- ☐ NPTEL
- ☐ GIAN – Global Initiative of Academic Network

19. (B) Platforms/ Portals for Content/ Delivery

Check all that apply.

- [ ] E-Pg Pathshala
- [ ] E-Gyankosh
- [ ] National Digital Library of India (NDLI)
- [ ] Vidhya Mitra
- [ ] DIKSHA

20. Any other, please specify:

_____

Cont...

21. 2.9 Do you have the working knowledge of Learning Management Systems (LMS)? *

Mark only one oval.

- ◯ Yes
- ◯ No *Skip to question 24*

Cont.....

22. Name of LMS

Check all that apply.

- [ ] Moodle – LMS
- [ ] Blackboard
- [ ] Edmodo LMS
- [ ] Schoology
- [ ] Google Classroom
- [ ] SWAYAM
- [ ] Open EDX

23. Any other, please specify:

_____

Cont....

24. 2.10 Have you used the social tools and technologies of e-learning other than LMS? *

Mark only one oval.

- ◯ Yes
- ◯ No

Cont...

25. If yes, Rate the following general tools and technologies used for sharing/delivery of content through a mechanism to e-learning while teachers and students are at a remote location: *

Mobile/Computer based e-learning tools and technologies

Mark only one oval per row.

	(1)	(2)	(3)	(4)	(5)
WhatsApp	◯	◯	◯	◯	◯
E-mail	◯	◯	◯	◯	◯
Google Drive	◯	◯	◯	◯	◯
One Drive	◯	◯	◯	◯	◯
Face book	◯	◯	◯	◯	◯
LinkedIn	◯	◯	◯	◯	◯
Telegram	◯	◯	◯	◯	◯
YouTube	◯	◯	◯	◯	◯

26. Any other, please specify:

27. 2.11 Rate the benefits realized by the students from the e-learning facilities at your institute *

Particular \ low –high

Mark only one oval per row.

	(1)	(2)	(3)	(4)	(5)
Larger reach of the study material and content to the students					
Makes overall learning system more effective.					
Improvement in knowledge sharing and final results of the student.					
Add value to the overall education system.					

28. 2.12 (A) Rate the following e-learning resources available at your institute in terms of meeting the curriculum requirement and student needs. *

E-Learning Resources

Mark only one oval per row.

	(1)	(2)	(3)	(4)	(5)
e-Lectures	◯	◯	◯	◯	◯
e-Journals	◯	◯	◯	◯	◯
e-book	◯	◯	◯	◯	◯
e-examination material	◯	◯	◯	◯	◯
e-Group Discussions	◯	◯	◯	◯	◯
e-Presentations	◯	◯	◯	◯	◯
Library/ Department Websites	◯	◯	◯	◯	◯

29. (B) Where have you found these e-learning resources: (Please tick √) *

E-Learning Resources

Check all that apply.

	Institute Website	Library Website	LMS	Resources	Archive	Downloads	Any other
e-Lectures	☐	☐	☐	☐	☐	☐	☐
e-Journals	☐	☐	☐	☐	☐	☐	☐
e-book	☐	☐	☐	☐	☐	☐	☐
e-examination material	☐	☐	☐	☐	☐	☐	☐
e-Group Discussions	☐	☐	☐	☐	☐	☐	☐
e-Presentations	☐	☐	☐	☐	☐	☐	☐

30. If any other, kindly mention here:

_____

Part – III: General Attitude of LIS Teachers/Practitioners Towards E-Learning

31. 3.1 General attitude towards handling/operating the e-learning tools and technologies *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I feel confident while using the e-learning tools and technologies in teaching	◯	◯	◯	◯	◯
Supporting users/students electronically is not very difficult	◯	◯	◯	◯	◯
I have faced problems delivering and sharing resources to users/students electronically	◯	◯	◯	◯	◯
I can usually solve the problems on my own while handling /operating e-learning tools and technologies	◯	◯	◯	◯	◯

32. 3.2 General attitude towards effectiveness of e-learning pedagogy: *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
E-learning makes it more interesting than the printed books due to animation, videos, digital effects, sounds, etc.					
E-learning helps in teaching at my own pace and it is more important than traditional learning					
E-learning is a quick and efficient way to explore a topic of interest in the study					
With the help of E-learning I am able to manage my teaching work efficiently					

33. 3.3 General attitude towards searching and accessing e-learning content *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
E-learning portals/websites offer easy navigation and searching for the digital content					
Teaching with the help of e-learning tools and technologies is an interesting experience					
I can upload the digital objects (such as videos, pictures and sound) on a LIS portals/ website/ e-learning portal					
I can access information and be in touch with the students and peers anytime, anywhere.					

34. 3.4 General attitude towards curriculum design for e-learning *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The curriculum should be designed by integrating online courses					
Lack of proper dynamic course curriculum for conducting online mode					
E-learning system is not adopted in LIS Curriculum in LIS schools of the country					
University /Institute provides special curriculum tasks to support the use of online learning / e-learning in LIS					

35. 3.5 General attitude towards importance and need of e-learning *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
By using e-learning techniques the advanced knowledge can be provided to the LIS students/users					
The e-learning is more advantageous for better academic achievement than traditional learning					
The use of e-learning provides richer educational experiences than traditional learning					
E-learning is more feasible, cost and time effective					

36. 3.6 General attitude towards different methods of e-learning : *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
E-learning courses have the ability to replace offline lecturers					
I use online discussion forums or Mailing lists					
Synchronized e-learning gives opportunity to serve users/students better					
Asynchronized e-learning offers limited scope for interactions					

37. 3.7 General attitude towards glitches in acceptance of e-learning : *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Internet cost is a problem in teaching through e-learning mode					
High cost of computer devices poses a problem in teaching through e-learning mode					
Creating and maintaining E-Learning portals/ Learning Management Systems (LMS) interface is very difficult task					
The online available courses/SLMs were open 24×7, allowing me to teach when it was convenient for me.					

38. 3.8 General attitude towards evaluation and assessment of e-learning *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Online Practice exam, Webinars and Live lectures are provided to the students.					
There are poor post-evaluation mechanisms for E-learning like Feedback mechanisms, checking assignments and attending users' queries					
Some external support is needed to upgrade and maintain the e-learning system					
Lack of clarity of evaluation methods used in the course					

39. 3.9 General attitude towards management and financial challenges of e-learning *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
E-learning programs have lack of proper managerial support					
Proper budget is required for improving e-learning facilities by the institute.					
There is lack of funding and sponsorship opportunities for E-learning					
Traditional mindset of learning is discouraging E-learning system in LIS					

40. 3.10 Attitude towards integration of e-resources with the Learning Management System *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The OPAC needs to be integrated with the course on the Learning Management System so that library staff/teachers can upload/edit/create library collection directly through the LMS itself					
Resources from online databases/resources must be integrated with the course on the Learning Management System.					
Discovery search must to be available integrating class resources, library resources, databases and e-resources so that teachers can find the information and resources on a single click from the LMS itself.					
More trainings are needed on how to use Learning Management System (LMS)					

41. 3.11 General attitude towards future perspectives of e-learning *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Online learning will benefit by increasing efficiency in teaching/learning					
Skill based courses or Special training for students may be provided for learners to learn more effectively by using online learning / e-learning					
E-learning is an additional task that may affect the routine works of the library/ Department					
E-learning may be useful in blended learning					

42. 3.12 Any challenge(s), faced by you in E-learning of LIS, please describe:

43. 3.13 Your overall comment about E-learning in Library and Information Science sector in the country:

44. 3.14 Give your suggestions for further improvement of E-learning in Library and Information Science sector in the country:

Appendix – II

Research Questionnaire for LIS e-Learners

Questionnaire for LIS e-Learners

Dear Learners,

A warm welcome and greetings.

Myself Neelam Kabra, a research scholar in the Department of Library and Information Science, Vardhman Mahaveer Open University Kota.

I am undergoing my doctoral research under the guidance of Professor (Dr) Dinesh Kumar Gupta, Ex Professor in the Department of Library and Information Science, Vardhman Mahaveer Open University, who is presently working in The Central University of Haryana on post of Professor in the Department of Library and Information Science.

I have prepared a questionnaire for the related survey of my research work entitled " An Analytical Study of e-Learning initiatives in Library and Information Sector in India", and will be sending you the same questionnaire. The data from this questionnaire is to be obtained from LIS e-Learners / students who are involved in e-Learning from various Universities / Platforms throughout the country including you. The information provided by all of you will be used only for the research work and will be kept strictly confidential.

It is my humble request to you to kindly respond positively the above questionnaire as early as possible. Your cooperation is a much-needed step in the completion of my research work.

Requesting you once again to kindly respond the questionnaire positively as soon as possible.

Thanking you in advance for your kind cooperation.

Yours Sincerely,

Neelam Kabra,
Research Scholar,
Department of Library and Information Science,
Vardhman Mahaveer Open University, Kota.

* Required

Part – I: Demographical Information

1. 1.1 Your Name (Optional)

2. 1.2 Your Email ID (Optional)

3. 1.3 Age Group (Years) (Please tick √) *

Mark only one oval.

- ◯ Below to 25
- ◯ 25-35
- ◯ 35-45
- ◯ 45-55
- ◯ 55 to Above

4. 1.4 Gender *

Mark only one oval.

- ◯ Male
- ◯ Female

5. 1.5 State (which you belong to): *

6. 1.6 Level of Education: *

Mark only one oval.

- ◯ BLISc
- ◯ MLISc
- ◯ M. Phil.
- ◯ Ph.D.

Part – II: Background Knowledge on Concept of E-learning

7. 2.1 Have you joined any awareness program/webinar/resource of e-learning in LIS sector? *

Mark only one oval.

- ◯ Yes
- ◯ No

8. 2.2 Have you joined/attended any e-learning course/programme in Library and Information Science /webinar on e-learning /delivery of e-resources of any institute/university? *

Mark only one oval.

- ◯ Yes
- ◯ No

9. If yes, what mechanism was used to make available/ delivery of content, please brief:

_____

_____

_____

_____

_____

10. 2.3 Which type of e-learning course/program(s), you have participated in? *

Level of e-learning Course/programme (s)

Check all that apply.

- ☐ Certificate Course
- ☐ Diploma Course
- ☐ Degree Course
- ☐ Continuing Education Programs (Webinar/Seminar/Conference/Workshops, etc.)

11. Any other, please specify:

_____

12. 2.4 What have you learned through e-learning mode? *

E-learning Activity

Check all that apply.

- [ ] Full Fledge Course
- [ ] Any Paper (Course) in a Programme
- [ ] Any component of a Course
- [ ] Participating in Webinar, Online lecture, etc.

13. Any other, please specify:

_____

14. 2.5 How many e-learning course/program (s) have you participated in? *

Mark only one oval.

- ◯ One
- ◯ Two
- ◯ Three
- ◯ Four
- ◯ Five or more

15. 2.6 Why did you participate in e-learning? (Please tick √) *

Reason of e-learning in LIS

Check all that apply.

- [ ] For joining a course
- [ ] For joining a program
- [ ] For updating knowledge/skills
- [ ] For continuing education and learn during COVID-19 pandemic
- [ ] For professional growth / career advancement
- [ ] For adopting new pedagogies of education and learning
- [ ] For enriching your profile
- [ ] For improving the productivity in your working environment

16. Any other, please specify:

_____

17. 2.7 Do you plan to participate in another e-learning course in future? *

Mark only one oval.

- ◯ Yes
- ◯ No

18. 2.8 What kind of e-learning approach you are aware about? *

E-learning approaches

Check all that apply.

- [ ] Content available on Websites
- [ ] Content available on e-learning portals/platforms like E-Pgpathshala, E-Gyankosh, SWAYAM, etc.
- [ ] Availability / delivery through social media applications like WhatsApp, Facebook, Telegram, etc.
- [ ] Joining online sessions
- [ ] Online examination / evaluation
- [ ] Availability of e-resources / e-books

19. Any other, please specify:

_____

20. 2.9 Do you have knowledge about Open Educational Resources (OERs) for e-learning in LIS sector? *

Mark only one oval.

- ◯ Yes
- ◯ No

21. If yes, please describe about their usefulness in your study:

_____

_____

_____

_____

_____

22. 2.10 Have you used any e-learning platforms/portals/applications for learning Library and information science? *

Mark only one oval.

- ◯ Yes
- ◯ No *Skip to question 26*

Cont...

23. 2.11 Have you accessed any of the following e-learning platform/portals for any of your study/ work: *

(A) Platforms/ Portals for synchronised online courses/ virtual education

Check all that apply.

- [ ] SWAYAM Portal
- [ ] SWAYAM Prabha
- [ ] Spoken Tutorial
- [ ] NPTEL
- [ ] GIAN – Global Initiative of Academic Network

24. Platforms/ Portals for Content/ Delivery *

Check all that apply.

- [ ] E-Pgpathshala
- [ ] E-Gyankosh
- [ ] National Digital Library of India (NDLI)
- [ ] Vidhya Mitra
- [ ] DIKSHA

25. Any other, please specify:

_____

Cont...

26. 2.12 Have you used the tools and technologies of e-learning? *

Mark only one oval.

- ◯ Yes
- ◯ No

If yes, Rate the following general tools and technologies used for e-learning/ for delivery of the content (You may opt for as many as you want)

27. Mobile/Computer based e-learning tools and technologies

Mark only one oval per row.

	(1)	(2)	(3)	(4)	(5)
Moodle LMS	◯	◯	◯	◯	◯
CMS – Content Management System	◯	◯	◯	◯	◯
Websites	◯	◯	◯	◯	◯
WhatsApp	◯	◯	◯	◯	◯
E-mail	◯	◯	◯	◯	◯
Google Drive	◯	◯	◯	◯	◯
One Drive	◯	◯	◯	◯	◯
Face book	◯	◯	◯	◯	◯
LinkedIn	◯	◯	◯	◯	◯
Telegram	◯	◯	◯	◯	◯

28. Any other, please specify:

29. 2.13 Did you access the course from your home computer, work computer or both? *

Mark only one oval.

- ◯ Home Computer/ Laptop
- ◯ Work Computer/Laptop
- ◯ Both Home Computer and Work Computer

30. 2.14 Do you agree/ have knowledge about the e-learning possibilities in your course/career? *

Mark only one oval.

- ◯ Yes
- ◯ No

Part – III: General Attitude of LIS Students Towards E-Learning

31. 3.1 General attitude towards handling/operating the e-learning tools and technologies *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I feel confident while using the e-learning tools and technologies during my studies	◯	◯	◯	◯	◯
The online interaction with the peer group is easier and this helps in learning	◯	◯	◯	◯	◯
One can learn, while working through e-learning	◯	◯	◯	◯	◯
I have completed the e-learning course successfully.	◯	◯	◯	◯	◯

32. 3.2 General attitude towards searching and accessing the e-learning resources in LIS *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
e-learning tools and technologies are easier when compared to searching using the printed books					
In e-learning, the learning activities performed can be much easier as compared to the classroom learning activities.					
Downloading the digital content (such as videos, text pictures and sound) from a LIS portal/website, for learning					
Immediate availability of information in E-learning enhances my overall learning					

33. 3.3 General attitude towards effectiveness and quality of e-learning pedagogy in LIS sector: *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
E-learning is an interesting way to learn than the printed books and class room situations.					
E-learning helps in learning at my own pace					
One can learn while working, through e-learning and Leaner has option to learn either synchronously /asynchronously or both					
Quality assurance is an issue in e - learning, as there is no mechanism of quality control					

34. 3.4 General attitude towards different methods of e-learning: *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
E-learning courses may replace face-to-face teaching/learning in future					
Both traditional and E-learning methods are equally important for better academic achievement in LIS.					
Synchronized mode of e-learning is suitable where high band width internet access is available					
Asynchronized e-learning is better where the students prefer to study as per their choice and pace					

35. 3.5 General attitude towards glitches in acceptance of e-learning in LIS sector: *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Internet access as well as availability of device pose an issue because of the requirement of smart phone/laptop/desktop with multimedia facility.					
Learning on e-learning platform requires skills and is time consuming					
Sometimes resources linked on the course page are not opened and creates confusion.					
Faculty lack interest and that makes e-learning boring					

36. 3.6 General attitude towards evaluation and feedback of e-learning : *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The feedback received after evaluations were timely and encouraged the continuation of courses through e-learning					
All evaluations were given sufficient time for submission.					
I received the recognized e-certificate after completion of online learning for career progression/ promotions.					
The online help features of the course have been very effective					

37. 3.7 General attitude towards integration of e-resources with the Learning Management System: *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The OPAC needs to be integrated with the course on the Learning Management System so that student can search library collection directly from the LMS itself					
Resources from online databases/resources must be integrated with the course on the Learning Management System.					
Discovery search must be available integrating class resources, library resources, databases and e-resources so that student can find the information and resources on a single click from the LMS itself.					
Librarians have not taken initiating steps for the integration of course content with the library's OPAC and e-resources.					

38. 3.8 General attitude towards overall e-learning course/ programme (s) experience : *

Question Statements

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Completion of the course was clearly outlined					
Topics of the course were clearly presented.					
The course was properly formatted					
The content of the course was up to date					

39. 3.9 Any other challenge(s), faced by you in e -learning of LIS, please describe:

40. 3.10 Your overall impression and comments about e-learning in Library and Information Science sector in the country:

41. 3.11 Give your suggestions for further improvement of E-learning in Library and Information Science sector in the country

Research Paper Publications

(In UGC Approved List of Journals)

S. No.	Title	Journal	Author(s)	Year	Vol. No.	Issue No.	Page No.
1.	**Revisited Indian Origin Library and Information Science Journals included in UGC API: A Study**	*DESIDOC Journal of Library and Information Technology*	Dinesh K. Gupta, Vijendra Kumar and Neelam Kabra	2018	38	1	49-55
2.	**MOOCs in Library and Information Science in India: An Analytical Study**	*SRELS Journal of Information Management*	Dinesh K. Gupta and Neelam Kabra	2020	57	1	
3.	**Role of Information and Library Network (INFLIBNET) Centre in Online Education during CORONA Period**	*SRELS Journal of Information Management*	Neelam Kabra, Dinesh K. Gupta and Vijendra Kumar	2020	57	6	337-349

DESIDOC Journal of Library & Information Technology, Vol. 38, No. 1, January 2018, pp. 49-55, DOI : 10.14429/djlit.38.1.11213

Revisited Indian Origin Library and Information Science Journals included in UGC API: A Study

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ABSTRACT

University Grants Commission (UGC) listed more than 38,000 journals based on three databases, Web of Science, Scopus and Indian Citation Index for selection/promotion of teachers and other academic staff in the universities and colleges, in India. The first covers 15 journals in the area of Library and Information Science which are published from India. This study provides comprehensive information of those journals with the objectives of critically studying on the aspects such as: reviewed/refereed/coverage in abstracting and indexing in databases, journal ranking and updateness of the journal. The list of LIS Journals presently available on the UGC website is reviews.

Keywords: Library and information science journals; University Grants Commission; Journal selection; UGC API

1. INTRODUCTION

There is a phenomenal growth of library and information science journals during last one decade. The study by Dutta and Sen describes that during last 100 years in all 186 periodicals have been published from India out of which 60 periodicals started during 2011-14[1], which indicates that about one-third of total periodicals started only during this period of five years. The possible reason could be linking publications with the career progression of library and information professionals working in higher education system in the country. While looking at the background the University Grants Commission (UGC) Regulations of 1998[2] prescribed a fix number of publications and thereafter introduction of academic performance indicator (API) for selection and promotion of teachers and librarians in the 'UGC regulations on minimum qualifications for appointments of teachers and other academic staff in universities and colleges and measures for the maintenance of standards in higher education 2010' linked publications with the recruitment and career progression.

The Regulations 2010 prescribes various activities for counting of APIs, namely: Teaching, learning and evaluation related activities; Co-curricular, extension and professional development related activities; and research and academic contribution. In the category 'Research and Academic Contributions' various areas are included, namely: Research papers published in refereed journal; Research publications (books, chapters in books, other than refereed journal articles); Research projects; Research guidance; and Training courses and conferences/seminars/workshop papers. The UGC notification No.F.1-2/2016 (PS) Amendments, dated 10 January 2017[3] comprising of a list of 38652 journals across the subjects, mentions that the list is dynamic and may be reviewed from time to time. Through the amendment the UGC decided to compile the list in view of complaints that academics were publishing in sub-standard, and sometimes paid for publications[4].

These journals are from all branches of knowledge and covers large number of journals published from foreign countries. There was no source giving consolidated information of the Indian library and information science journals covered in the UGC list[5]. In this study, authors tried to review the Indian LIS journals which are covered in the list and various aspects of the regulations for the journal articles published by teachers, namely ISSN, reviewed/refereed/abstracted and indexed in databases, journal ranking and updateness of journals.

2. JOURNAL FOR GRADING ACADEMIC POINTS

The UGC Regulations 2010[6], and thereafter four amendments in the Regulations have been brought out to make the APIs effectively operational. The weightage of API for journal publications in the UGC Regulations 2010 and amendment Regulations of 2016[7] is summarised in the Table 1.

Table 1 makes it clear that there are changes in the weightage in API in 2010 and the fourth Amendment of 2016 in regard to maximum points for refereed journals (from 15 points to 25 points); papers with impact factor between 1 and 2 and between 5 and 10; and non-refereed journals.

3. CRITICISM OF THE UGC LIST OF JOURNALS

UGC has taken a bold step to bring research publications of the Indian teachers and research community in the legitimate and high standard journals but the proposed list received criticism from higher education community in the social media and press and media on many grounds including:

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Table 1. Journal Weightage in UGC regulations 2010 and 4th Amendment 2016

Type of Journal	UGC regulations, 2010	4th Amendment regulations, 2016	
	Maximum points for university and college teacher	Maximum points	Remark
Refereed Journal	15 per publication	25 per publication	-
Augmented as Indexed journal	by 5 point	-	-
Impact factor between 1 and 2	by 10 points	by 10 points	Journals with impact factor less than 1 - by 5 points
Impact factor between 2 and 5	by 15 points	by 15 points	
Impact factor between 5 and 10	by 25 points	by 20 points	Journals with impact factor above 10 by 25 points.
Non-refereed but recognised and reputable journals and periodicals having ISBN/ ISSN	15 per publication	10 per publication	Other reputed journals as notified by the UGC

* The University shall identify journals and will be approved by the UGC, may also recommend journals for inclusion in the list.

- It excludes many reputed Indian journals and also journals in Hindi and regional languages.
- It arranges alphabetically irrespective of subject and discipline which makes it user-unfriendly.
- It denotes journals of one subject in other subjects/faculties which creates confusion and does not help teachers in developing a list of journals for any particular subject.
- It covers multiple occurrences of many titles.
- It covers large number of titles which have been 'Inactive' titles from the Scopus source list.

In communication of 30 January 2017[8] from the UGC, requested all the universities to submit the list of journals for the inclusion in the UGC list.

4. OBJECTIVES AND METHODOLOGY OF THE STUDY

- To provide information about the library and information science journals published from India covered in the UGC list; and
- To discuss aspects such as ISSN, reviewed/refereed, coverage in abstracting and indexing databases, journal ranking and updateness for the journals covered in the list.

It is essential to know the details of the Library and Information Science journals published from India which are covered in the UGC list. A comprehensive analysis of these journals would help the potential contributors for making appropriate decisions for publications in the Indian LIS journals to facilitate their selection and career progression in universities and colleges by attaining APIs as per the UGC Regulations. Also briefly reviews the list of the LIS Journals available on the UGC website as on 20 October 2017.

Table 2 gives country-wise distribution of the journals covered in the UGC list[9]. Table represents that India is the third country after USA and UK in the country-wise distribution of journals published and covered in the list. 15 Library and Information Science Journals published from India covered in the UGC List are mentioned in the *Annexure-1*. This list excludes journal entry with multiple names/occurrences with earlier name (e.g. DESIDOC Journal of Information technology); journal entry with 'Library' as subject in the UGC list while belonging to others subject (e.g. Electronics and Information Planning) as it is covered in Engineering (with class number 621.38 as per UDC Classification scheme) in ISSN database and the broad subject Engineering sub-category Electrical and Electronic Engineering as per Scimago[10].

The following sources were consulted and used for getting maximum information relating to every individual journal:

- Ulrich International Periodicals Directory
- ISSN Database
- Source list(s) from and information Citation databases like Scopus, Web of Science, Indian citation Index, Scimago, Google Scholar
- List of journals covered Library and Information Science Databases like LISA, LISTA and Library Literature and Information Science Index.
- Journal platforms like OJS, www.indianjournals.com
- Individual/organisational website of journal/sponsor
- One recent issue of the journal for when lesser information is received from other sources like: Indian Library Movement, Indian Journal of Information Library and Society, KELPRO Bulletin, Journal of Library and Information Technology.

The UGC's first list covers journals mainly from three databases, namely Web of Science, Scopus and ICI. 12 of the 15 journals in this study are covered only in ICI while 3 journals namely: *DESIDOC Journal of Library and Information Technology*; *Annals of Library and Information Studies;* and *Journal of Digital Information Management* are covered in

Table 2. Country-wise distribution of LIS journals

Country	Journals	Country	Journals
Australia	2	Malaysia	1
Canada	3	Netherlands	5
Denmark	1	Nigeria	1
Germany	8	Pakistan	1
Hungary	1	Singapore	1
India	15	Taiwan	2
Iran	2	United Kingdom	28
Japan	1	United States	54
		Total	**126**

2 databases, viz., ICI and Scopus. No Indian LIS journal is covered in Web of Science till this study.

5. DISCUSSIONS

(a). Journals are the most important research outlets for earning APIs for teachers and librarians. The column three of the Table 1 indicates the points given to a journal and periodical publication (both for refereed and reputed) and additional points for having ISSN, indexed and impact factor as incorporated in the UGC Regulations 2010. Fourth amendment in the Regulations excludes the word periodicals from journals and periodicals. However, universities follow different pattern on the matter of inclusion of journals/periodicals; publications in free/paid journals, etc.[11-13].

(b). Subject prescribed in the UGC List: The list indicates different subjects for the journals and one such subject 'library' is covered. The journals covered in the subject 'library' do not denote an accepted subject. The accepted subject may include 'library science', 'library and information science'. Looking at the list, the journal '*Annals of Library and Information Studies*' is covered in computer science in place of library and information science. The journal '*Digital Information Management*' is covered in business, management and accounting; computer science; and social sciences. The journal '*DESIDOC Journal of Library and Information Technology*' is covered in 'library' as per the ICI while covered in 'social science' as per the Scopus List.

(c). Referring or reviewing process of the Journals: If the journal is refereed, a teacher gets more weightage in the API score for his/her publication. The frequently used terms include: refereed/peer reviewed. There is no standard procedure to follow for referring/review process. In some journals the editorial team members are involved in referring/review process while in others the editor takes the responsibility to get reviewed/refereed by experts in the area. Sometimes mix of the two takes place. In special issue on any particular theme, the guest editor takes such responsibility.

All the journals are refereed or reviewed. Many of these have highlighted such information on the cover page of the journal. However if a comparison of the pre API and post API period is made, one can find that it was not practice in pre-API era.

(d). ISSN: Studies on increase in the number of journals having ISSN mention that 'One of the reasons for the phenomenal increase during 2006 to 2015 in the number of journals seeking ISSNs is linking of journals with API. A journal with ISSN used to have more weightage in the API score of the UGC's 'minimum qualifications for appointments of teachers and other academic staff in universities and colleges and measures for the maintenance of standards in higher education 2010'[14-16].

Although in the 4th amendment, the UGC has eliminated the ISSN link with the journal publication may be due to the reason that acquiring ISSN is customary for any reputed or refereed journals. 'The ISSN is a standard identifier for serials (e.g., journals, magazines, newsletters, newspapers, annuals) whether published in print, online or other media. Each medium version is assigned a separate ISSN' means online and printed versions of a journal are required to have separate ISSN[17]. While studying ISSN of journals, it is noticed that: All the 15 listed journals have ISSN, with 7 print only journals; 8 journals print and online (e-ISSN) both; and none of journal is available exclusive online. The print journal 'Digital Information Management' does not have e-ISSN while content is available full text online of the period 2010-2016. The journal makes a mention of the print ISSN on the webpage of the journal.

(e). Editor and Editorial Board affiliations: Many of the factors contribute for establishing reputation of the journal including ISSN. Though ISSN is simply an identifier for the journal title and does not in any way contribute to the reputation/ quality of the journal. The editor and editorial board affiliations of the journal can significantly raise the reputation of the journal. The practice for editorial board in the journals varies as mentioned below:

- 12 journals have more than 10 members in the editorial board/committee whereas 2 journals have less than 10 members in editorial board. One journal does not have editorial board.
- There is one or more members from foreign countries in 6 Journals.
- 7 journals have more than one member from one organisation.
- 9 journals have not mentioned full affiliation of editorial board members.
- 3 journals do not have proper editorial page.

Although, the guidelines for requesting an ISSN through the National centre of ISSN, India prescribes that editorial boards with complete addresses of the editorial board members including email address of the members and full contact address of publisher with publisher name should be displayed on the journal website. The journal should have a valid URL address and should cover a precise subject or address a specific target audience. Further the guidelines state that the journal should have a proper editorial page with affiliation of editor(s)[18].

Reputations of the organisations which run the journals also contribute to the prestige of the journal. When looked at the sponsoring body, 2 journals are govt. publication, 4 journals are association's publication, 7 journals are private publication (NGO, foundation etc.), 1 journal is university publication and 1 journal is individual publication.

(f). Online Access to the Journals: In recent, journals are fully/partly migrating to the online mode/platforms for easier access to the journal content. 9 of the 15 journals are available online. The complete picture of the journals in regard to online availability is presented in the Table 3.

(g). Coverage in abstracting/Indexing Databases/Directories: A journal gets recognition by many ways including coverage and listing in various subject based indexing and abstracting databases. It gives visibility to the journal and is useful in making bibliographies and bibliometric studies. LISTA, LISA and Library Literature and Information Science Index are popular databases in the subject[20,21,22]. However, individual journal gives description of the

Table 3. Online access to journals

Criteria	Journal	Remarks
Online Journals	*Annals of Library and Information Studies*	Online Archive Available (1954-2016); access through OJS.
	DESIDOC Journal of Library & Information Technology	Online Archive Available (1981-2017); access through OJS.
	Journal of Digital Information Management	ISSN assigned only for Print Version and Online Archive Available (2003-2016); access through journal website.
Online Journals with login	*Library Herald*	Online Archive Available (2003-2016); Hosted on Indianjournals.com[19]
	SRELS Journal of Information Management	Online Archive Available (1964-2016); Self hosting
	Library Progress (International)	Online Archive Available (2010-2016); Hosted on Indianjournals.com
	Information Studies	Online Archival Available (2000-2015)); Hosted on Indianjournals.com
	COLLNET Journal of Scientometrics and Information Management	Online Archive Available (2007-2016); Self hosting
	PEARL: Journal of Library & Information Science	Online Archive Available (2007-2016)); Hosted on Indianjournals.com

database coverage as described in the column 8 of the Annexure-1.

(h). Ranking of Journals: Ranking of a journal in the scientific community is decided on the basis of the impact of the published papers. In other words how the journal papers are cited over a period of time by others will be the impact of the journal. Citation tools have different criteria for calculating impact of the journals. The following table gives a picture of the journal ranking from three sources, namely: Google Scholar, Scimago, Indian Citation Index[23,24]:

In the Table 4 it is witnessed that there are different ranking of journals being the criteria of evaluation is different in each evaluating tool and those are incomparable. However, impact factor is considered as an important criteria for getting of extra points for the paper authored by the teacher.

(i). Updateness of the Journals: While going for calculating impact factor of the journal on the basis of ICI, it was intended to calculate impact factor for 2016 but all the issues of many journals were not available. More so, calculating impact factor of journals covered in the ICI database for 2015, the following limitations were observed:

- The Journal of Digital Information Management had no record since 2010.
- International Library Movement did not have articles from 4th issue of the 36th Volume in 2014.
- For Library Herald, issue no. 52 & 53 exist in the year 2014.
- For Journal of Library and Information Science, from 2nd issue of 2013 and later issues are not available.

While checking with the availability of the last issue of the journal, it was found that some of the journals were lagging behind the time schedule of more than a year.

6. UPDATING THE JOURNALS' LIST

Apart from Journals covered in the three indexing sources, namely Scopus, Web of Science, and Indian Citation Index; Journals recommended by the members of UGC standing committee and language committee(s); and Journals recommended by the universities (after de-duplication). Total number of journals covered in the UGC-approved list of journals is around 32,000. Besides, 13,130 journals are ceased publications that are stored separately.

Current statistics of UGC approved journals[25]:

- Total UGC approved journals in all subjects : 32745.

Table 4. Ranking of the journals

Journals	Google Scholar (H5-Index)*	Scimago Ranking (H – Index)#	Indian Citation Index (ICI) Impact Factor for the 2015)$
Annals of Library and Information Studies (ALIS)	7	5	0.211
SRELS Journal of Information Management	5	-	0
DESIDOC Journal of Library & Information Technology	13	4	0.208
Journal of Digital Information Management	5	9	0
Collnet Journal of Scientometrics and Information Management	7	-	0.018
Indian Journal of Information, Library & Society	-	-	0.024
Others	Result not found	Result not found	Not Calculatable$1

*H5-Index - h5-index is the h-index for articles published in the last 5 complete years. It is the largest number h such that h articles published in 2011-2015 have at least h citations each.

H-Index - Journals number of articles (H) that have received at least h citations over the whole period.

$ Impact Factor (IF): Citations to 2013 & 2014 in 2015 / Total no. of articles of 2013 & 2014 (as per available data of Indian Citation Index (ICI);

$1 Complete issues/articles of the journals of 2013 to 2015 not available, so it is not exactly calculable.

- All Journals are categorised in 4 broad subject categories: (Science; Social Science; Arts & Humanities; and Multidisciplinary).
- 'Library and Information Science' subject journals are covered in Social Science Subject Category.
- Total UGC approved journals in subject of 'Library and Information Science' are 383 (from 42 different countries).
- 93 LIS journals published from India out of 383 journals (24% of total LIS journals) are being covered in the list.

The number also increases manifold from 15 journals to 93 (more than 6 times) from the first list of journals published by the UGC.

Journal titles recommended for inclusion either by the Committee(s) or by the Universities were subjected to the checklist developed by the Standing Committee on Notification on Journals on the criteria[26] as shown in Table 5.

Journal titles that scored 6 or more score in Science, Social Sciences and Multidisciplinary category and 5 or more score in Humanities on the checklist criteria were included in the UGC-approved List of Journals.

Journal titles recommended by the universities that did not have ISSN number have not been included in UGC-approved list of journals. Recommendations of various universities for titles that were invalid or did not qualify the checklist have also not been included in this list.

7. CONCLUSIONS

Whether, the UGC list of journals would yield qualitative improvement in the scientific literature or assist the authors in gaining personal benefits is still unknown. The greatest limiting factor in advancing professional/technical communication at the initial stage was restricting the publication to select three citation databases to the list of journals by the UGC for career progression of teachers in the universities and colleges. The present study proves that there are variations in the practices followed by Indian LIS journals in regard reviewed/refereed/ coverage in abstracting and indexing in databases, journal ranking and updateness of journals. There is a need for studying all the 93 journals based on such aspects to apprehend the library and information professionals to decide on choosing the right journal for publishing their researches.

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Table 5. Checklist criteria used for inclusion of journals

Criteria	Answer	Score
The journal has a website which provides full postal and email addresses of Chief Editor and Editors, and at least some of these addresses are verifiable official addresses	Yes/No	If yes, then only proceed further
		Select score
1. The website provides complete instructions to authors/reviewers	Yes/No	+1 for 'Yes'/-1for 'No'
2. The journal has a well-defined peer-review and publication Policy	Yes/No	+1 for 'Yes'/-1for 'No'
3. The journal has a well-defined Ethics policy	Yes/No	+1 for 'Yes'/-1for 'No'
4. The journal has a declared frequency of publication each year	Yes/No	+1 for 'Yes'/-1for 'No'
5. The journal is published regularly and in time following its declared frequency	Yes/No	+1 for 'Yes'/-1for 'No'
6. The journal claims that it is indexed in a given database and this claim is verified	Yes/No	+1 for 'Yes'/-1for 'No'
7. Journal levies submission/publication charges	Yes/No	0 for 'Yes'/+1 for 'No'
8. Since when is the journal being regularly published (select any one)	<4 years	0
	4-6 year	+1
	>6years	+2
Final Score (taking into consideration scores of points 1-8)		

www.ugc.ac.in/pdfnews/3375714_API-4th-Amentment-Regulations-2016.pdf (Accessed on 15th January 2017).
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In the current study, he carried out the collection of data, tables, figures, references etc.

Ms Neelam Kabra has completed her Master in Library & Information Science in 2014 from Vardhman Mahaveer Open University (VMOU), Kota. She is presently pursuing doctoral research on E-learning in LIS from VMOU, Kota. She has published 2 papers in journals/conferences. Her area of research is E-learning.
In the current study, she did collection of data and data entry, etc.

Annexure -1

Library and Information Science Journals published from India covered in the UGC List

UGC List Sr. No.	Journal and Frequency	Source	Subject as per UGC List	ISSN/e-ISSN	Latest Issue Available+	Covered in Indexing/Abstracting Databases as described in Webpage/ Journal/
12	*Annals of Library and Information Studies (Quarterly)*	Scopus & ICI	Computer Science; Social Sciences	0972-5423 0975-2404(e)	Year 2016, Vol. 63, Issue 4	Abstracted in Library and Information Science Abstracts (UK) and Indian Library and Information Science Abstracts (India)
7940	*COLLNET Journal of Scientometrics and Information Management (Quarterly)*	ICI	Library	0973-7766 2168-930X(e)	Year 2016, Volume 10, Issue 2	British Library Inside, EBSCO Databases, ESCI®, Genamics, Journal Seek, Google Scholar, Portico, ProQuest LISA, SciBase, Ulrich's Periodicals Directory, WorldCat Local (OCLC)
9575	*DESIDOC Bulletin of Information Technology (Renamed as DJLIT)*	ICI	Library	0974-0643		Scopus, LISA, LISTA, EBSCO, Library Literature and Information Science Index, The Informed Librarian Online, ProQuest, Open J-Gate, Indian Science Abstracts, Indian Citation Index, WorldCat
9576	*DESIDOC Journal of Library & Information Technology (Bio-monthly)*	ICI	Library	0974-0643		
9577	*DESIDOC Journal of Library and Information Technology*	Scopus	Social Sciences	0974-0643 0976-4658(e)	Year 2017, Vol. 37, Issue 6	
10695	*Electronics Information & Planning*	ICI	Library	0304-9876	-	-
14951	*IASLIC Bulletin(Quarterly)*	ICI	Library	0018-8441	Year 2016, Vol.61, Issue -2&3	Library and Information Science Abstract; INSPEC; Indian Library Science Abstract; Guide to Indian Periodical Literature
15597	*Indian Journal of Information, Library & Society (Quarterly)*	ICI	Library	0971-4286	Year 2016, Vol. 29, issue 1	-
15902	*Information Studies(Quarterly)*	ICI	Library	0971-6726 0976-1934(e)	Year 2015, Volume-21, Issue-4	LISA; LISTA; Library Literature*
17778	*International Library Movement (Quarterly)*	ICI	Library	0970-0048	Year 2014, Vol. 36, Issue 4	-
182	*Journal of Digital Information Management (Quarterly)*	Scopus & ICI	Business, Management and Accounting; Computer Science; Social Sciences	0972-7272	Year 2016, Vol.14 No.6	Engineering Index- COMPENDEX Scopus, INSPEC & others (Indexed in different 67 databases and secondary services)
21358	*Journal of Library and Information Science(Quarterly)*	ICI	Library	0970-714X	Year 2015, Volume 40, Number 1 & 2	Library and Information Science abstracts (LISA) and Library literary index.
21360	*Journal of Library and Information Technology (Quarterly)*	ICI	Library	0975-6183	Year 2016, Vol. 12, issue 1	-
24019	*KELPRO Bulletin(Quarterly)*	ICI	Library	0975-4911	Year 2016, Vol. 20, Issue 20	-

MOOCs in Library and Information Science in India: An Analytical Study

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Abstract

Government of India's teaching learning portal, Study of Webs of Active Learning for Young Aspiring Minds (SWAYAM) has become fully operational for offering Massive Open Online Courses (MOOCs) in the country. There is a faster growth in the number of courses being offered in different disciplines for varied groups of students through MOOCs. Library and Information Science (LIS) MOOCs are of different level, namely, school level, post school level, master's level, and a course for continuing education for working librarians and LIS teachers working in universities and colleges. The present paper gives an overview of the courses being offered on SWAYAM platform in the subject of Library and Information Science. MOOC on 'Digital Library' was the first LIS course offered during September 2016 – March 2017. In all 13 MOOCs (with 34 course offerings) were announced and completed until June 2019. More than 26000 students enrolled for library and information science courses during this period.

Keywords

E-Learning, Library and Information Science (LIS), Massive Open Online Courses (MOOCs), Online Learning, Massive Open Online Courses (MOOCs), Study of Webs of Active learning for Young Aspiring Minds (SWAYAM).

Full Text:

Full Text : PDF | (PDF views: 3)

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Role of Information and Library Network (INFLIBNET) Centre in Online Education during CORONA Period

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Abstract

The role and sphere of online education is growing at all levels of education. The outbreak of COVID-19 has put on hold the classroom education as students are away from campuses. Online education is the only method to continue teaching-learning during the present time. The Ministry of Human Resources and Development (MHRD), Government of India and the University Grants Commission (UGC) have taken many steps to implement and popularise online education in the country in the past and have increased the focus in the circumstances caused due to COVID-19. The INFLIBNET Centre of the UGC has taken numerous initiatives for delivering education online to the doorsteps of the learners in the country even during the lock down period caused due to COVID-19. The present paper elaborates the role INFLIBNET Centre played for delivering education online.

Keywords: E-Learning-India, INFormation and LIBrary NETwork (INFLIBNET), Library and Information Science, Online Education

1. Introduction

There is a growing need for ICT in higher education as it offers ample opportunities for higher education institutions. In recent years, the government of India has initiated a number of initiatives to promote the use of Information and Communication Technologies (ICT) at all levels of education including higher bringing transparency, equal access, and learner-friendly system of education. The MHRD and the University Grants Commission (UGC) have taken up many initiatives to employ technologies in the campuses, e.g. online admission, National Academic Depository, WiFi Campuses, National Digital Library, Smart Campus, MOOC based education, online education, telecast of educational programmeme on SWAYAM Prabha, Online ARPIT programmeme for faculty development, etc. so that real benefits reach the students at the grass-root level.

Due to the outbreak of COVID-19, the government placed many restrictions; Universities and colleges asked students to vacate hostels in mid-March. However, MHRD was clear that 'COVID 19 should not stop students' learning process.

INFormation and LIBrary NETwork (INFLIBNET) has been playing the role of a catalyst in providing e-resources and extending online education related facilities to institutions of higher learning in the country. Apart from its role for supporting libraries: e-resources, professional development, automation, etc. In the country, it has been playing its role in designing, developing, delivering, and supporting online education in the country. The present

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paper discusses its role in extending online education in Library and Information Science in the country.

2. Objectives

The objectives of the paper are:

- To review the role of online education in higher education in India,
- To deliberate on the key developments in online education in the higher education sphere in India and the role of INFLIBNET in online education in general and of Library and Information Science in particular, and
- To point out the steps taken up by the INFLIBNET Centre to combat with the epidemic COVID-19 through online education measures.

3. Methodology

Data for the present study has been collected from the primary sources, such as INFLIBNET website, newsletter, annual report, journal articles, seminar/conference papers, etc. Recent announcements made by the MHRD, UGC are also used for describing the present-day developments in online education caused by epidemic COVID-19. The data has been analysed and presented through various tables and figures.

4. Key Developments in Online Education

Many Some initiatives to popularise online education in higher educational institutions in the country by MHRD and UGC include:

SWAYAM PRABHA is a group of 32 DTH channels devoted to telecasting of high-quality educational programmemes on 24X7 bases using the GSAT-15 satellite.

VIDYA-MITRA is an integrated e-Content Portal (n.d.) which is a repository of all e-content developed under NMEICT, MHRD, India. Availability of free content for graduate and post-graduate students on the ePGP portal (n.d) and that too as Open Education Resources (OER) are important developments.

The offering of MOOCs on the Swayam platform and transfer of credit through Swayam Regulations 2016, is a major step. The UGC is set to launch more than 2000 MOOCs in more than 70 subjects and this has become a reality. Such courses will be available as scheduled courses and self-based courses; from the school level to the certificate, diploma, undergraduate and postgraduate level; in the streams such as arts, commerce, science, engineering, management, and teacher education. The courses hosted on SWAYAM are in 4 quadrants: 1. video lectures, 2. specially prepared reading material that can be downloaded / printed, 3. self-assessment tests through tests and quizzes, and 4. an online discussion forum for clearing the doubts (UGC Regulation, 2016)

The MHRD notified 75 National Resource Centres (NRCs) providing online refresher programmemes for Higher Education faculty through SWAYAM on 4 May 2018 (HRD Ministry Notifies 75 NRCs, n.d.). UGC has approved UGC (Online Courses) Regulations, 2018, which is a landmark reform in the field of Higher Education on 24 May 2018 (University Grants Commission … (Online Courses) Regulations, 2018). Higher Educational Institutions can now offer Certificate, Diploma, and Degree Programmemes in online mode on par with their regular programmes.

UGC Regulations on Minimum Qualifications for Appointment of Teachers and other Academic Staff in Universities and Colleges and Measures for the Maintenance of Standards in Higher Education (UGC Regulations on Minimum Qualifications….., 2018), largely emphasize the role of teachers in design, development, and delivery of e-content and MOOC courses, and due credits have been given for such works in the Regulations.

These developments clearly indicate the readiness of the government to bring about changes in the educational system in the country. However, during pre-COVID period, the pace of integrating MOOCs into the university curricula was a little slow, the teachers were also not adequately prepared and students were unaware of the potentials of such courses; these are the big challenges. The epidemic COVID 19, led to an increase in the recognition of the need for online education as a mechanism through which teaching learning can be kept alive during lock down period.

UGC Guidelines on Examinations and Academic Calendar in view of the COVID-l9 pandemic, issued on 29 April 2020 expands the role of e-learning/online education (UGC Guidelines on Examinations and Academic Calendar…, 2020). The committee appointed by the UGC observed that:

> "Some of the universities lack adequate IT infrastructure for the effective delivery of education

through e-learning mode. The Committee also observed that the duration of the lockdown and effect of the COVID-19 the country, especially with regard to educational institutions, is uncertain".

The committee suggested that to overcome challenges faculty should be adequately trained in the use of ICT and online teaching tools, so that they complete about 25% of the syllabus through online and 75% syllabus through face-to-face teaching".

5. Role of INFLIBNET Centre in Pre COVID-19 Era

INFLIBNET Centre is an autonomous Inter-University Centre of the UGC of India. It is a major National Programmeme initiated by the UGC in March 1991 with its Head Quarters at Gujarat University Campus, Ahmedabad. Initially started as a project under the IUCAA, it became an independent Inter-University Centre in June 1996. INFLIBNET is involved in modernizing university libraries in India and connecting them along with information centres in the country through a nation-wide high-speed data network using the state-of-art technologies for optimum utilisation of the information by the academia in the country. INFLIBNET is set out to be a major player in promoting scholarly communication among academicians and researchers in India (Information and Library Network Centre, n.d).

It is working on many projects including: India Rankings (NIRF), e-PG Pathshala, VIDWAN: An Expert Database and National Researchers Network, Vidya-Mitra, SWAYAM (for PG Course), SWAYAM-PRABHA, etc. which has wider implications for the higher education system in the country.

Technology being a driving force in the contemporary education system, the Centre, on behalf of the UGC, has taken up a number of initiatives for delivering the information specially the serials and continuing resources to the doorsteps of the academic community of the country (Chandrakar & Arora, 2011) In recent, it has been carrying out many activities, such as:

- Making information resources and scholarly journals available through e-Shodh Sindhu;
- Providing India Rankings to the institutions in various categories;
- Developing of portals for "Study in India";
- Developing "Ek Bharat Shrestha Bharat" web-portal which is sub-set of MHRD project called "Unnat Bharat Abhiyan"; and
- Creating online application for Institutes through which institute can join UBA and can opt the villages.

Since the beginning, the responsibility of developing and hosting e-content for the postgraduates in more than 70 subjects including Library and Information Science was given to the INFLIBNET. In recent, The INFLIBNET Centre has been given responsibility for the coordination of development of MOOCs for SWAYAM platform. The INFLIBNET Centre is an anchoring agency for coordinating MOOC courses in Library and Information Science. It has brought out an agreement with Central University of Himachal Pradesh for examining the learners and credit transfer. The INFLIBNET Centre also hosts a pool of e-content on the portal VIDYA-MITRA.

On continuing efforts for content organisation and delivery, the INFLIBNET Centre received Open Education 2018 Awards for Open Education Excellence for its project called "VIDYA-MITRA: An Integrated e-Content Portal" which was presented during OEC Global Conference to be held in Delft, The Netherlands from 24 -26 April, 2018 (INFLIBNET Newsletter, 2018).

6. ePG Pathshala

The INFLIBNET Centre has been assigned the task of coordinating all activities involved in the production of e-contents at the postgraduate level in more than 70 subject areas under the initiative called e-PG Pathshala funded by the MHRD under its National Mission on Education through ICT (NMEICT). The Centre is responsible for the technical as well as administrative coordination of this project. An open-source Learning Management System called "ATutor" has been configured to host e-contents created in this project and developed e-Pathshala Management System to manage the administrative workflow as well as a platform that facilitate interaction among the team members of each subject and track the progress made by contributors, i.e. paper coordinators, content writers, and reviewers (e-PGPathshala, n.d) .

The content and its quality is the key component of the education system. High quality, curriculum-based, interactive content in different subjects across all

disciplines of social sciences, arts, fine arts and humanities, natural and mathematical sciences, linguistics, and languages is being developed under this initiative named e-PG Pathshala (Waghmode, 2014) (Figure 1).

Development of e-contents in 70 subjects with 723 papers and 18000 modules of e-text, 17000 videos, 30000 quizzes, 10000 more learns have been undertaken involving 3200 experts as on 31 March 2018. The content is available in Creative Commons attribution-Share Alike. In Library and Information Science, the content of 15 courses is available with 393 e-text modules with 377 videos along with quizzes and learns more. Brief statistics of the Library and Information Science papers is given in the Figure 2 screenshot.

Content is available unit-wise in four quadrants, namely e-text (textual), self learning (video), self assessment and learn more (Figure 3).

The content is made available in the standardized format provided by UGC and is available at the INFLIBNET Centre in four Quadrants, as below (Quality and benchmark… (e-content)…, n.d.):

a. *First Quadrant:* Textual Document, PDF / e-Books / illustration, documents and Interactivity wherever required Simulations, Virtual Labs,
b. *Second Quadrant:* Video and Audio Content in an organised form, Animation,
c. *Third Quadrant:* MCQ, Problems, Quizzes, Assignments, & solutions, online feedback through discuss forums & setting up the FAZ, Clarifications on general misconceptions etc., and
d. *Fourth Quadrant:* Related Links, Wikipedia Development of Course, Open content on Internet, Cases Studies, Anecdotal information, Historical development of the subject, Articles.

7. Vidya-Mitra

Vidya-Mitra is an online learning portal for all the e-content projects developed under the NME-ICT, MHRD. The portal provides facility to search and browse all hosted content wherein a learner can easily access the desired material including audio/video learning material, textual material, multimedia-enriched materials, etc. through a single interface. Moreover, features of faceted search, usage statistics, project-wise access, My-Space are incorporated in this portal (Vidya-Mitra, Integrated E-Content Portal, n.d.) (Figure 4).

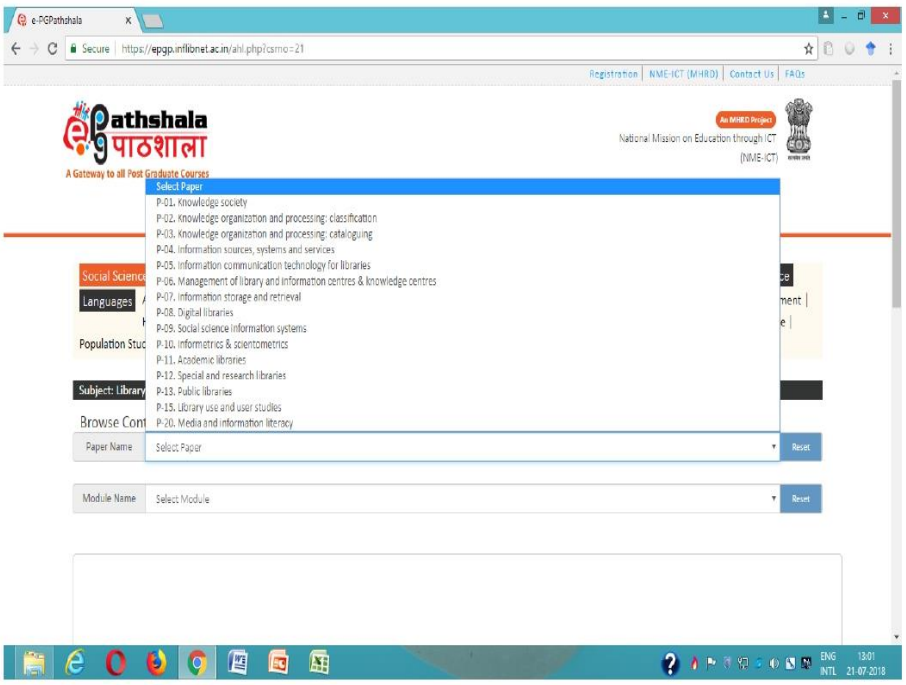

Figure 1. Screenshot of LIS subject contents on E-PG Pathshala.

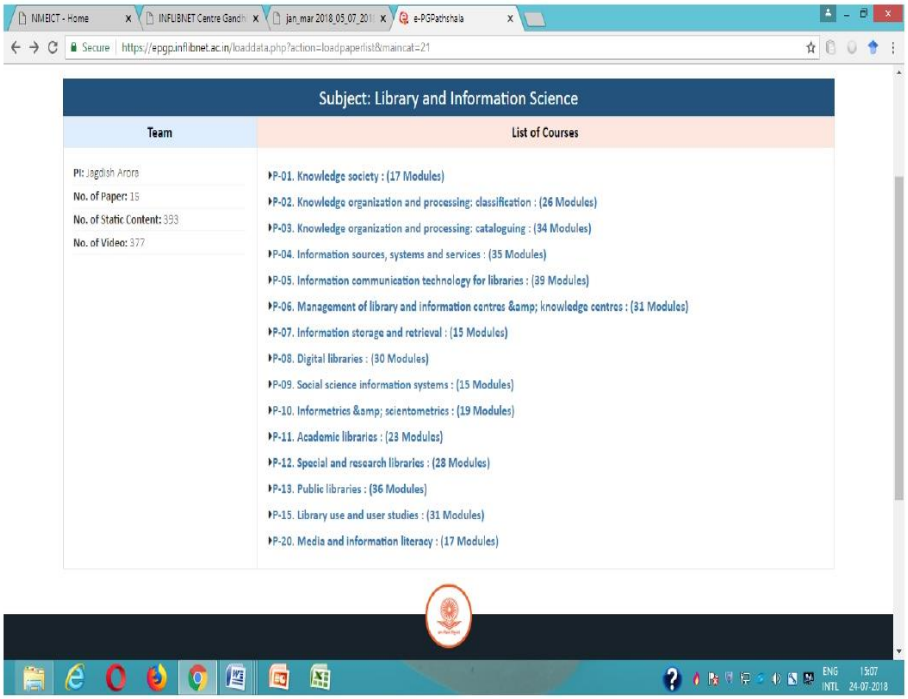

Figure 2. Screenshot of LIS subject contents on E-PG Pathshala, course list.

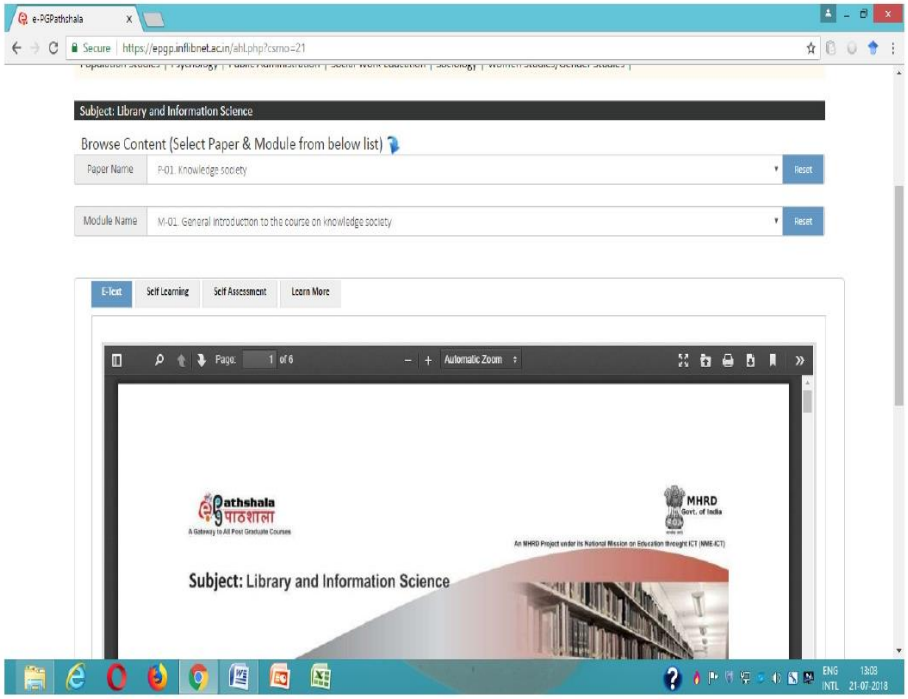

Figure 3. Screenshot of LIS subject contents on E-PG Pathshala, content browsing.

Figure 4. Screenshot of home-webpage of VIDHYA-MITRA portal.

8. Massive Open Online Courses (MOOCs)

INFLIBNET is the anchoring agency for offering MOOCs for post-graduate Programmemes in Library and Information Science on the Swayam platform. SWAYAM is a programmeme initiated by the Government of India and is designed to achieve the three cardinal principles of Education Policy viz., access, equity, and quality. The objective of this effort is to take the best teaching-learning resources to all, including the most disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy.

This is done through an indigenous developed IT platform that facilitates hosting of all the courses, taught in classrooms from 9th class till post-graduation to be accessed by anyone, anywhere, and at any time. All the courses are interactive, prepared by best teachers in the country, and are available, free of cost to the residents in India (Figure 5).

Courses delivered through SWAYAM are available free of cost to the learners, however students wanting certifications shall be registered & shall be offered a certificate on successful completion of the course, with a little fee. At the end of each course, there will be an assessment of the student through proctored examination and the marks/ grades secured in this exam could be transferred to the academic record of the students. UGC has already issued the UGC (Credit Framework for online learning courses through SWAYAM) Regulation 2016 advising Universities to identify courses where credits can be transferred on to the academic record of students for courses done on SWAYAM (SWAYAM MOOCs Portal, n.d.). MOOCs which have been made offered in Library and Information Science and anchored by the INFLIBNET include:

Information and Communication Technology for Libraries	Information Sources System and Services
Bibliometrics and Scientometrics	Knowledge Society
Information Storage and Retrieval	Digital Library
Management of Libraries and Information Centres & Knowledge Centres	Web Content Development

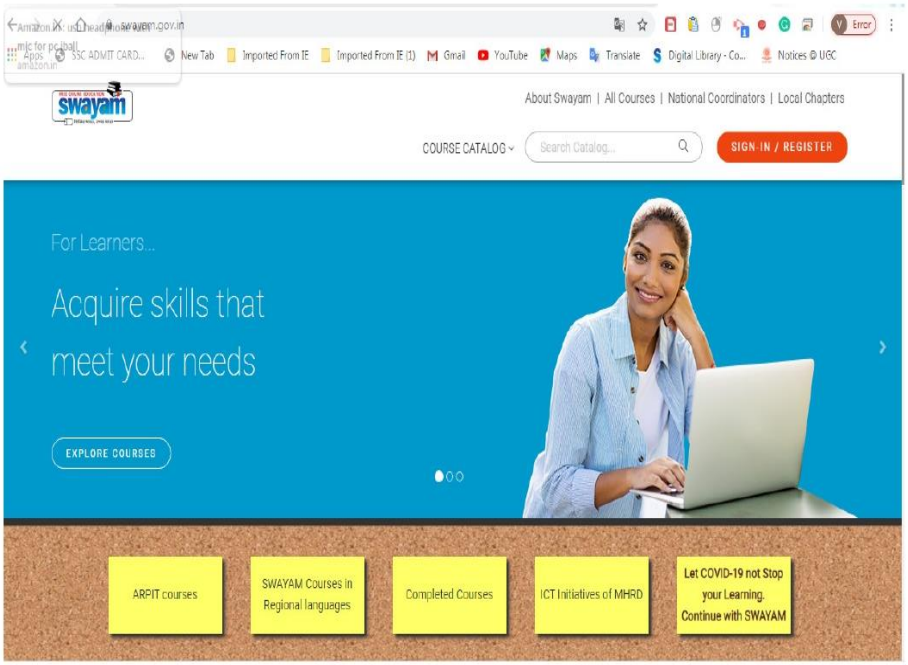

Figure 5 Screenshot of SWAYAM MOOCs platform.

9. Swayamprabha

The SWAYAMPRABHA is a group of 32 DTH channels devoted to telecasting of high-quality educational programmemes on 24X7 bases using the GSAT-15 satellite. Every day, there will be new content for at least four hours which would be repeated 5 more times in a day, allowing the students to choose the time of their convenience. The channels are uplinked from BISAG, Gandhinagar. The contents are provided by NPTEL, IITs, UGC, and Consortium for Educational Communication (CEC), IGNOU, NCERT and NIOS. The INFLIBNET Centre maintains the web portal (UGC Letter Reg., n.d) (Figure 6).

10. INFLIBNET Efforts to Combat with the COVID-19 Epidemic

UGC issued related communication to all the universities that 'There are several ICT initiatives of the MHRD, UGC and its IUCs - INFLIBNET and CEC, in the form of digital platforms which can be accessed by the teachers, students and researchers in Universities and Colleges for broadening their horizon of learning' (UGC Letter Reg., n.d.) (Figure 7).

Following is the list of some of the ICT initiatives along with their access links:

SWAYA On-line Courses	https://storage.googleapis.com/uniquecourses/online html
UG/PG MOOCs (n.d.)	http://ugcmoocs.inflibnet.ac.in/ugcmoocs/moocs/courses.php
e-PG Pathshala	http://epgp.inflibnet.ac.in
e-Content courseware in UG subjects	http://cec.nic.in/
SWAYAMPRABHA (n.d.)	https://www.swayamprabha.gov.in/
CEC-UGC YouTube channel	https://www.youtube.com/user/cecedusat
National Digital Library	https://ndl.iitkgp.ac.in/
Shodbganga	https://shodhganga.inflibnet.ac.in/
e-Shodh Sindhu	https://ess.inflibnetac.in/
Vidwan database	https://vidwan.inflibnet.ac.in/

More than half of the resources mentioned above are developed/hosted and maintained by the INFLIBNET Centre itself.

Figure 6. Screenshot of SWAYAMPRABHA platform.

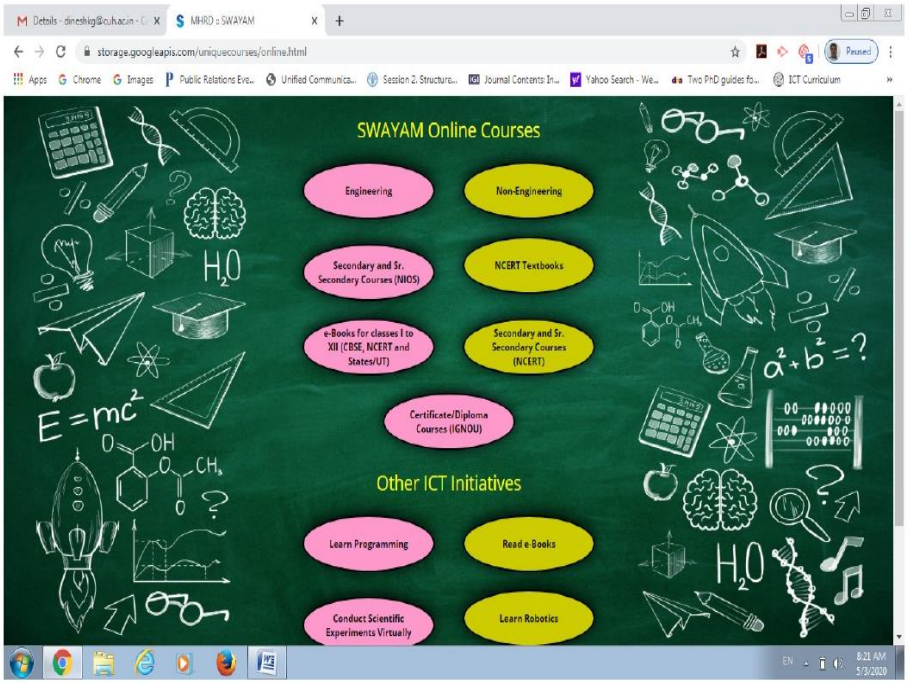

Figure 7. Screenshot MHRD SWAYAM online courses.

11. MOOC Course Content made available for Teachers and Learners

SWAYAM is a programmeme initiated by the Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching-learning resources to all, including the most disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy. UGC MOOCs: A vertical of SWAYAM is hosted and maintained by the INFLIBNET centre and in the situation caused with COVID-19, the INFLIBNET centre made available the textual content and self learn content (video) for the teachers and learners so that teachers can continue their classes and students continue learning and teaching-learning is not stopped due to COVID-19. MOOC courses run by UGC and CEC as national Coordinators made available include 129 PG Courses and 229 UG Courses (Figure 8).

The list of 123 PG Courses contains content (text and self-learning modules) of the 8 Library and Information science MOOCs for use of teachers and students.

12. LMS hosting with ePGP Content

The ePGPathshala (ePGP) has a pool of more than 700 courses (papers) from 70 subjects. It contains the text material, videos, MCQs, further readings, etc. for students and teachers. The present system does not allow copying the link of the text material and using in to other platforms including Learning Management Software (LMS). A large number of training programmemes and workshops are taking place in the country to make use of LMS to use these resources in the universities and colleges. Due to non-availability, LMS facility at the institutional level and know how to use these resources the ePGP content is not being used optimally. Now with the new system INFLIBNET is providing LMS 'Software as Service' and the content available in ePGPathashala is made available on the LMS itself so that faculty is comfortable and can make further necessary changes according to the need of

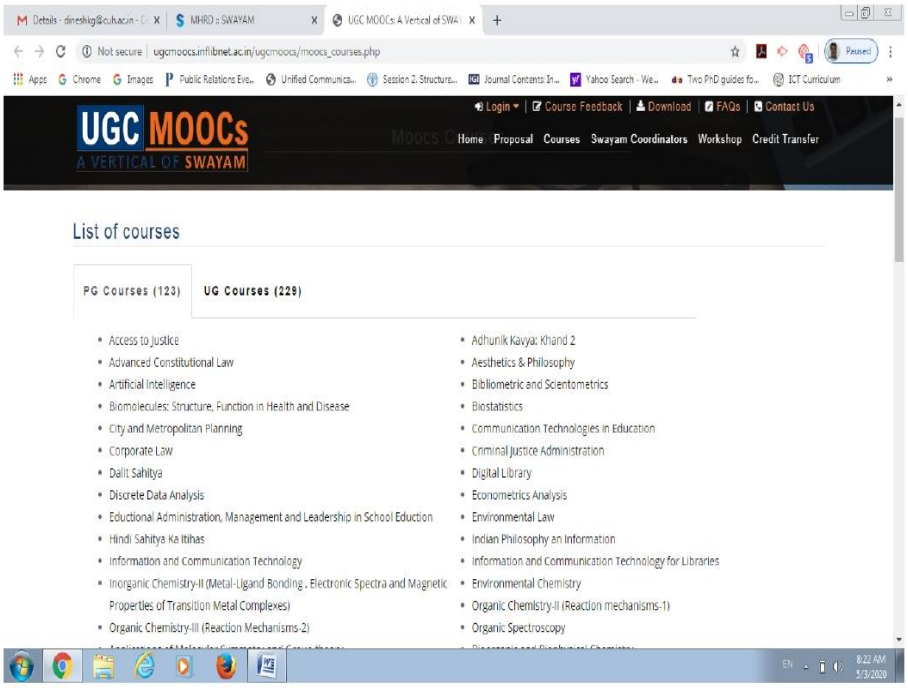

Figure 8. Screenshot UGC-MOOCs webpage.

the syllabi of the university and the requirements of the students. Faculty can add content from other resources and of their own. Faculty can also add resources like PPTs, previous year question papers, model question papers, glossary on the course page. Faculty can also take up activities like assignments, sessionals, and quizzes to undertake continuous assessment. CUH is the first to have the facility of LMS from INFLIBNET with content of 37 courses in 20 subjects. CUH is in the process of adding more courses from ePGP to CUH LMS. These days, CUH is developing its faculty to undertake the required teaching tasks through these new ways (*Learning Management System (LMS) Service of INFLIBNET, n.d.*) (Figure 9).

13. Remote Access facility for Teachers and Students

During the epidemic COVID-19, the INFLIBNET Centre introduced new service called remote access through INFED (INFLIBNET Access Management Federation) is to allow users to access internal and external resources seamlessly using a single, institutionally controlled identity. This would not only allow authorized users to access e-resources from anywhere, anytime but would also circumvent the requirement of maintaining multiple passwords for multiple resources in multiple domains (The INFLIBNET Access Management Federation (INFED, n.d.) (Figure 10).

Until now, the modules prepared and available on ePGP, SWAYAM Prabha, and such portals are used in the classroom. It is high time that the use of other subscribed e-resources should be made for the students whether they are studying in face-to-face environment or online; or even in blended mode. It would enhance the usage of e-resources and ultimately would be useful for the teaching-learning process.

14. Conclusion

The higher education landscape is likely to change sooner than it has in the previous one decade. Online education technologies have challenged and changed the traditional assumptions about teaching learning. It has not only proliferated the growth of MOOCs and has led to new choices for aspiring students. Choice Based Credit Syllabi, LOCF, full online courses are imminent to

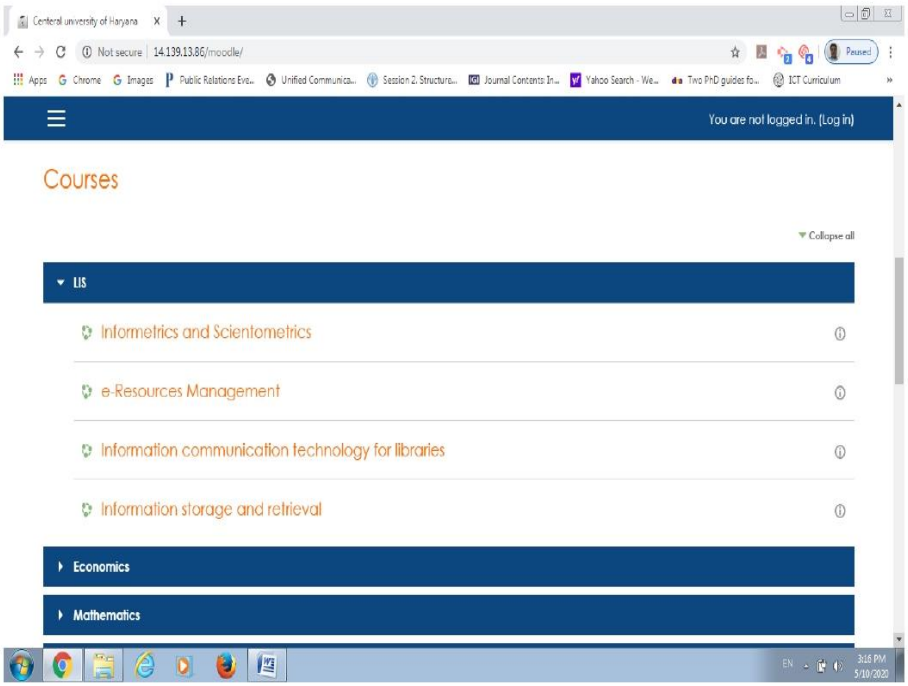

Figure 9. Screenshot of LMS platform of CUH hosted and maintained by the INFLIBNET.

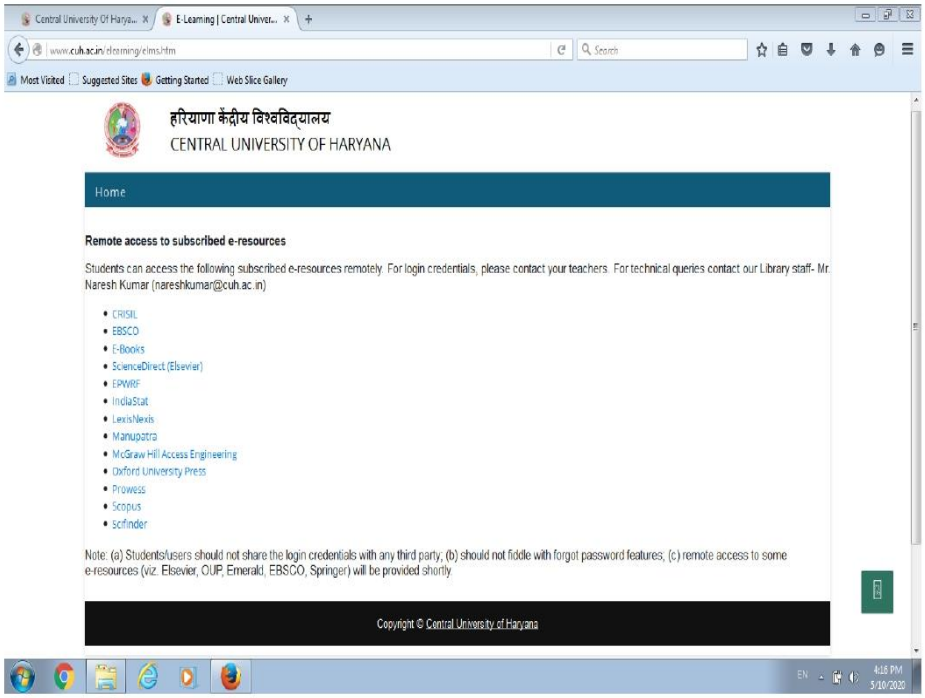

Figure 10. Screenshot of webpage of remote access facility by the INFLIBNET.

grow at a large scale in near future. The present-day crisis of COVID-19 has turned online education as necessity rather than choice. Many of the changes brought about by the INFLIBNET are leading to changes in education at large. Library and information science faculty and practitioners need to take advantage of such initiatives by the INFLIBNET and join hands in providing online education and also integrate library services into the online education. The following suggestions are made to expand the facility of online education by the INFLIBNET and other agencies to further support the faculty and students to combat with the epidemic COVID-19:

- In addition to ePGP content available with the LMS facility, all other OERs (funded from NMEICT) may be pooled and be available at the LMS facility,
- Efforts must be made in developing library professionals to devise mechanism to include e-books and e-resources on the LMS, appropriately useful for the all courses/units/ topics,
- Availability of translation of content into multiple languages in order to meet out the needs of learners not fluent in English, and
- Bringing guidelines for integrating online education face to face classes as blended approach to learning.

Such dynamic steps will continue in the post COVID-19 era when the MHRD, the UGC, universities and other agencies will devise newer strategies as a response to the situations as they emerge.

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Annexure 1

Important Circulars issued by UGC/ MHRD after COVID -19 Pandemic			
Sl. No.	Publication Date	Description	Link
1.	05-02-2020	UGC - Online-Amendment-Regulation	https://www.ugc.ac.in/pdfnews/6758108_Online-Amendment-Regulation.pdf
2.	28-02-2020	UGC Letter Operational Guidelines for SWAYAM Coordinators and Mentors in Universities and Colleges	https://www.ugc.ac.in/ugc_notices.aspx?id=Mjc1Nw==
3.	28-02-2020	UGC - Learning Outcomes based Curriculum Framework (LOCF)	https://www.ugc.ac.in/ugc_notices.aspx?id=Mjc1OQ==
4.	28-02-2020	UGC - Chairman's Letter MOOCs Courses offered on SWAYAM	https://www.ugc.ac.in/pdfnews/6270462_MOOCs.pdf
5.	05-03-2020	UGC UGC Letter reg. Advisory for Universities and Colleges - Novel Coronavirus (COVID19)	https://www.ugc.ac.in/pdfnews/4200962_Advisory-for-Universties-Corona-Letter.pdf
6.	12-03-2020	UGC Letter reg. MHRD NME-ICT initiatives.	https://www.ugc.ac.in/pdfnews/9173825_NME-ICT-MHRD.pdf
7.	19-03-2020	UGC Letter to Universities -Precautions to be taken in the light of Novel Coronavirus (COVID-19)	https://www.ugc.ac.in/pdfnews/7796901_COVID-19.pdf
8.	21-03-2020	Appeal from Prof. D.P. Singh, Chairman, University Grants Commission to combat CORONA Virus	https://www.ugc.ac.in/pdfnews/2663575_English.pdf
9.	25-03-2020	UGC letter reg - LET COVID 19 not stop you from learning- ICT initiatives of MHRD & UGC for teaching learning.	https://www.ugc.ac.in/pdfnews/1573010_On-Line-Learning---ICT-initiatives-of-MHRD-and-UGC.pdf
10.	28-03-2020	UGC Quality Mandate - Suggestive Academic Activities	https://www.ugc.ac.in/pdfnews/8032600_ugc-qUALITY-mANDATE.pdf
11.	05-04-2020	UGC letter reg -Mental health & Well being of Students during and after COVID-19	https://www.ugc.ac.in/pdfnews/7012639_Mental-Health-and-Well-Being-of-the-Students.pdf
12.	11-04-2020	UGC- An Appeal- Inviting ideas- suggestions for Bharat Padhe Online campaign.	https://www.ugc.ac.in/pdfnews/1436240_Appeal-Bharat-Padhe-Online.pdf
13.	17-04-2020	UGC - Issues related to examinations and academic calendar	https://www.ugc.ac.in/pdfnews/2611352_Letter---Issues-related-to-examinations-and-academic-calendar.pdf
14.	25-04-2020	UGC Press Release on - Examinations & Academic Calendar	https://www.ugc.ac.in/pdfnews/6765580_Press-Release-regarding-Examinations-and-Academic-Calendar-pdf.pdf
15.	29-04-2020	UGC Guidelines on Examinations and Academic Calendar	https://www.ugc.ac.in/pdfnews/5369929_Letter-regarding-UGC-Guidelines-on-Examinations-and-Academic-Calendar.pdf
16.	04-05-2020	UGC letter reg National Digital Library (NDLI) COVID-19 Academic and Research Repository	https://www.ugc.ac.in/pdfnews/6342175_Letter-NDLI-COVID-19-Academic--Research-Repository.pdf

Conference Paper Presentations

S. No.	Title	Conference	Year	Place
1.	Online Courses on Digital Libraries: An Exploratory Study.	International Conference on Digital Libraries (ICDL)	2016	New Delhi
2.	Unified Public Library System for India: Present status and future prospects	Third India Public Libraries Conference and workshop(IPLC)	2017	New Delhi
3.	E-Learning tools and technologies for LIS education in 2020	One day conference on "Library in 2020"(Pustkalaya Parishad)	2018	Jodhpur
4.	E-Learning for Public Library Professionals in Current Scenario	National Conference on Revisiting Public Library Services in Current Scenario (NCRPLS)	2019	Jaipur

The Energy and Resources Institute

ICDL 2016: SMART FUTURE

Knowledge Trends that will Change the World

13–16 December 2016 | IHC, New Delhi, India

CERTIFICATE OF PARTICIPATION

This is to certify that

Mr/Ms/Dr Neelam Kabra

has participated/presented paper/poster in the conference.

Ajay Mathur
Chair, ICDL 2016
Director-General, TERI

Prabir Sengupta
Co-Chair, ICDL 2016
Distinguished Fellow, TERI

P K Bhattacharya
Organizing Secretary, ICDL 2016
Fellow and Area Convenor
Knowledge Management Division, TERI

Shantanu Ganguly
Organizing Secretary, ICDL 2016
Fellow
Knowledge Management Division, TERI

Indian Public Library Movement

Hosted by: NASSCOM FOUNDATION

Reaching the Unreached

This is to certify that Neelam Kabra participated in India Public Libraries Conference (IPLC) 2017 and workshop organized by Indian Public Library Movement, New Delhi, from 3-5 October 2017.

We wish her/him all the very best

P Jayarajan
Co - Chair, IPLC 2017
Organizing Committee

B Shadrach
Co - Chair, IPLC 2017
Organizing Committee

Shrikant Sinha
CEO NASSCOM Foundation

Shubhangi Sharma
Executive Director IPLM

IPLC 2017

3RD INDIA PUBLIC LIBRARIES CONFERENCE | 3 - 5 OCTOBER 2017

Transforming Indian Public Libraries: Strategies to "Reach the Unreached"

Pustkalaya Parishad, Jodhpur (Rajasthan)

Silver Jubilee Year 2018

Certificate of Participation

This is to certify that Dr. /Mr. /Mrs /Ms. NEELAM KABRA,

participated in the Pustkalaya Parishad's 22nd One Day Conference on " ***Library in 2020****" on March 25th, 2018 held at Hotel Shri Ram Excellency, Residency Road, Jodhpur and presented paper on spot / through web presentation on the topic entitled:* E-Learning tools and technology for CIS education in 2020.

(Padma Ram Choudhary)
President

(Shivdan Singh Rajput)
Secretary

12-13 OCTOBER 2019

NATIONAL CONFERENCE ON REVISITING PUBLIC LIBRARY SERVICES IN CURRENT SCENARIO

ORGANISED BY

Department of Library & Information Science
University of Rajasthan, Jaipur

&

Raja Rammohun Roy Library Foundation
Ministry of Culture, Government of India

NCRPLS 2019

Certificate

This is to certify that Prof./Dr./Mr./Ms. Neelam Kabra of (affiliation) _____ has Chaired the session/ Co-Chaired the session/ acted as Rapporteur/ Participated/ Presented Paper(s) entitled E-Learning for Public library professionals in current Scenario in the National Conference on Revisiting Public Library Services in Current Scenario held at University of Rajasthan, Jaipur during October 12th-13th 2019.

Purnima Kaushik

Dr. Purnima Kaushik
Organising Secretary

Plagiarism Report of the Thesis

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