Use of SWAYAM Platform by Library Professionals During: 2020-2021

Mr. Nitin M Chaware
Dr. Ashish S Raut

Mr. Nitin M Chaware

Research Scholar
VPMK Arts, Commerce & Science college
Kinhavali Tal-Shahapur, Dist-Thane
(M.S.)
nitvil@gmail.com

Dr. Ashish S Raut

Librarian
Shri Shivaji College of Arts,
Commerce and Science Akola (M.S.)
ashish.satvik@gmail.com

ABSTRACT-

Swayam platform provide a great opportunity of e-learning not only LIS professionals but also to all subject professionals. Researcher of this study find the awareness of the SWAYAM platform among the library and information science professionals. Now a days LIS Professionals using this platform for various purposes like updating the current knowledge, gets news knowledge's, various new technologies in LIS fields, for refreshers etc. Result shows that 50% of library Professionals not aware nor enroll on SWAYAM platform. It also shows that SWAYAM becomes an alternative of higher education. LIS professionals about SWAYAM and the popularity of SWAYAM, an online survey has been conducted among Library and Information Science (LIS) professionals using social media platforms. LIS professionals said that the platform is useful to LIS profession. Some suggestions also made to improve the performance of SWAYAM platform.

KayWords: SWAYAM, MOOC, Library Professionals. SWAYAM Awareness, Indian MOOC

INTRODUCTION

In 21st century tremendous changes and highly use of Information and Communication Technology (ICT) tools in various sectors and it has brought the changes in all the field of human life. It changes the entire face of teaching and learning system. Today growing demand of ICT resources in digital world, government of India launch "Digital India" Project in 2016. Most of the educational, researcher and teachers develop the new tools and technique for teaching and learning process. New technology has always been of interest of educationalist and students. This Technology widely used for the betterment of students those who are not admitted in any school or college, those who stay far away or not attending on specific time, they can listen their lecture on using this technological tool at any place any time. It plays a significant role in open and distance learning, academician guidance and teaching the students through these technologies. "Indian government and its academic agencies have also taken MOOCs seriously and a platform Study Webs of Active-Learning for Young Aspiring Mind (SWAYAM) has been launched with ambitious goals by Government of India, Ministry of Human Resource Development in 2016.

With 8 National MOOCs Coordinators (NMCs) has been established by MHRD with their prime responsibility being designing, developing, and delivering MOOC on various disciplines from senior school level to Post graduate level." (1)

SWAYAM is Indian MOOC Platform

Providing access to the quality learning resources across the country, the project "Study Webs of Active-learning for Young Aspiring Mind". (SWAYAM) has been started. SWAYAM provides an integrated platform and portal for online courses, using Information and Communication Technology and covering High School till all higher education subjects and skill sector courses to ensure that every student benefit from learning material through ICT.

SWAYAM is initiated program by government of India and designed to achieve the three cardinal principals of Education policy access, equity and quality. Swayam is a free and open learning platform for 9th postgraduate students. It is based on MOOC guidelines. SWAYAM is an Indian "Massive Open Access Course" (MOOC) for all. With the help of Microsoft, HRD Ministry and AICTE developed the SWAYAM program. The objectives of these efforts are to take the best teaching learning resources to all. SWAYAM seeks to bridge the digital divide for students who have remained untouched by the digital revolution and have not been knowledge economy. (2)

SWAYAM is a....

One-step web and mobile based interactive econtent for all courses from high school to university level.

High quality learning experience using multimedia on anytime, anywhere, basis.

State of the art system that allows easy access, monitoring and certification.

Peer group interaction and discussion forum to clarify doubts.

Hybrid model of delivery that adds to the quality of classroom teaching.

Whereas, SWAYAM involves development of MOOCs Compliant e-contain (video & text) and building a robust IT platform. (3)

"The Journey of SWAYAM can be traced back to 2003 with the initiation of the NPTEL, (National Program on Technology Enhanced Learning) a joint program on IIT & IIS, this was the first major attempt in E-learning in the country thought online web and video courses in Engineering, Science & Humanities streams. The launch of the National Mission on Education through information and Communication Technology) in Feb 2009."

Four Quadrants of MOOC-SWAYAM

The courses hosted on SWAYAM are based on 4 quadrants of MOOCs that is...

Quadrants 1 – Is a tutorial which shall contain: Video and audio content in an organized form Animation, Simulations, Video demonstrations, virtual, etc.

Quadrant 2 – Is a e-content which shall contain: PDF, Text, e-books, illustration, video demonstration documents, and interactive simulations wherever required.

Quadrant 3 – Is web resources which shall contain: Related link, Wikipedia development of course open source contain on Internet, Case studies, books including e-books, research paper and journals, historical development of the subject, articles, etc.

Quadrant 4 – Is self-Assessment which shall contain: Problems and solution, which could be in the form of multiple-choice questions fill in the blanks, matching question, short answer questions, long answer questions, Assignment and solutions, Discussion forum topics and

setting up the FAQs clarifications on general misconceptions. (4)

SWAYAM is a program initiated bv government of India and designed to achieve the three cardinal principals of Education policy access, equity and quality. Swayam is a free and open learning platform for 9th postgraduate students. It is based on MOOC guidelines. SWAYAM is an Indian "Massive Open Access Course" (MOOC) for all. With the help of Microsoft, HRD Ministry and AICTE developed the SWAYAM program. The objectives of these efforts are to take the best teaching learning resources to all. SWAYAM seeks to bridge the digital divide for students who have remained untouched by the digital revolution and have not been knowledge economy. (5)

UGC also issue Regulation for Universities to giving the credit to students those complete a course related to his UG or PG Degree submitting the completion exam marksheet of Swayam in college or university. It is mandatory to every university if any student clam the marks no one university refuse it. SWAYAM to notify courses on June 1 & Nov 1, every year. ⁽⁶⁾

Advantages of SWAYAM

The SWAYAM is free of cost but for the certificate we pay some fee of exam.

SWAYAM platform provide an alternative opportunity for higher education.

Learners get top quality teachers to teach the subject on a one platform.

It reaches the every-one who have internet connection.

Disadvantages of SWAYAM

SWAYAM platform can't not reach those who have no smart phones and computer system.

It takes so long time to complete the courses.

Regional language courses not available on SWAYAM platform.

SWAYAM platform reaches only where there is an Internet connection.

OBJECTIVES OF THE STUDY

- To study the awareness of SWAYAM among LIS professionals.
- To find the gross enrollment on SWAYAM platform.
- To find out the problems faced by library professionals while doing the SWAYAM courses.
- To find out the purpose of enrollment on SWAYAM.
- To find the perceptions of usefulness of SWAYAM Courses in the profession.
- To find out the Reason for not enroll on the SWAYAM Course.

SCOPE AND LIMITATIONS OF THE STUDY

In this research the online survey method has been used. This studies questionnaire was distributed maximum what's apps groups of Maharashtra states library science professionals. But only 104 responses for the study.

METHODOLOGY

For during this study researcher used survey method. For collecting the data researcher was used structured questionnaire. Questionnaire created through the help of Google form and the link was shared by social media especially on what's Apps. Because library science professionals well connected to each other through this social media and researcher get the responses in short period survey was done in August 2022 and total 104 LIS professionals were responded.

REVIEW OF LITERATURE

It provides a theoretical background to your study. It helps you establish the links between what you are proposing to examine and what has already been studied. It enables you to show how your findings have contributed to the existing body of knowledge in your profession. It helps you to integrate your research findings into the existing body of knowledge.

Mahajan., Gupta & Singh, (2019) In this paper author discusses the potential of MOOCs (massive open online courses) to transform education, especially health education and professional development. It describes the evolution of MOOCs, their classification, and their role in various fields of education, such as technology continuing education, health development, faculty development, community education. It is also promoting initiatives in India such as the SWAYAM portal and NPTEL, which aim to implement MOOCs to improve learning opportunities. However, it also addresses issues limitations associated with MOOCs, including issues related to course structure, accessibility, and student abuse.

Bardoloi., Das & Das, (2020) The researcher covered a variety of studies in his paper, with a focus on the use of online learning, especially in industrialized nations. However, applying online research had shown to be difficult in developing nations. The author's answer was the MOOCs platform. Learners of MOOCs have certain possibilities and face some hurdles in their pursuit of lifelong learning.

Baruah, (2020), The world we live in today is a realm of science and technology. The traditional teaching-learning process has undergone significant modifications as a result of the development of information and communication technology (ICT). India made progress towards digital learning or ICT-

focused education, just like other industrialised around the world. In countries India. SWAYAM and MOOCs are two significant learning platforms that have evolved with the goal of reaching every citizen and meeting their educational needs. Its scope was broad and it included all areas of study, from high school to postgraduate, from engineering to the arts stream. The most effective and revolutionary elearning programmes in Indian education have been proven to be MOOCs and SWAYAM. The traditional model of education around the world has been altered by the wave of globalisation and the advancements in science and technology. The usage of ICT and elearning in education has been growing daily. The scope of India's initiative on e-learning through MOOCs and SWAYAM has been expanding with time as well as in terms of popularity. The government and professionals have been working to make these online learning systems more sophisticated, inclusive, and practical. There is no denying that MOOC and SWAYAM have helped a lot of students, young people, and workers in India.

Shewale., (2021). Library and information science professionals use online resources to find information for a variety of purposes, and trends and technologies emerging constantly being incorporated into libraries and library and information science education. Most LIS professionals are interested in Swayam, and many of them have enrolled in the LIS courses offered there, with some having completed the course and receiving certificate. Modern teaching methods benefit from the MOOC (Massive Open Online Course) education system. By obtaining this higher education, every member of society can make their life more successful. Swayam is a useful education system based on the MOOC system developed by the Indian Ministry of Human Resources and Development.

Balasubramaniam., (2021).The studentteachers have a high level of MOOCs-SWAYAM awareness as a result of their personal involvement in e-learning. SWAYAM is low in 24.74 percent of student-teachers. It denotes the urgent need to raise awareness about SWAYAM and its facilities and benefits among Coimbatore district student-teachers. The study also found that female studentteachers were unfamiliar with MOOCs-SWAYAM. As a result, educational institutions must provide strong motivation and awareness to female student-teachers about the importance of MOOCs-SWAYAM. In order to effectively implement MOOCs-SWAYAM, a fast and continuous internet connection should be provided on campus. Awareness can be spread through various social media platforms, blogs, websites, and other platforms.

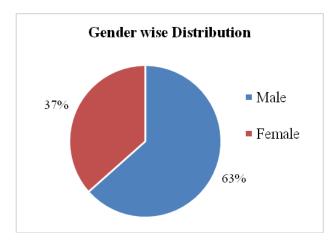
Pujar., (2021). The purpose of this study is to discover awareness and learning experiences of e-learning on SWAYAM among PG students at Rani Channamma University, Belagavi, as well as factors influencing student utilisation of SWAYAM/ MOOCs. The findings indicate that PG students are enthusiastic about acquiring knowledge and skills through online courses because it saves them time and allows them to learn at their own pace. The students can access the e-content at any time until they understand the concepts. The results show that female respondents are more involved in online courses, whereas male respondents are less involved. They claimed that, despite the fact that SWAYAM courses are free, there is no proper guidance for them regarding these courses. Many of them have been discontinued the courses in the middle of the session because of their busy schedule of academic activities. The learners prefer to complete courses that provide them with certificates. The survey reveals that learners are interested in the

SWAYAM programme that provides new knowledge and supports life-long learning.

Kumar., (2021). The idea of a MOOC has become a new face in the world of education and is gaining popularity. The purpose of the study is to address the expected role and duties of libraries and LIS professionals from the perspective of MOOC. The potential chances for LIS professionals in MOOCs that can position in enhance their the current information society are evaluated. The study identifies responsibilities that LIS professionals can fill and explores approaches to improve MOOC usage among academics. Understanding MOOCs and their numerous linkages to libraries and LIS professionals is aided by the paper. The report also makes several recommendations for improving the creation and application of MOOCs. Some of the collaborations and roles may enable LIS professionals to adopt and engage themselves in practicing MOOCs.

Kumar & Singh (2022). This article provides a detailed overview of MOOC implementation in Eastern India and highlights the importance and potential solutions for integrating MOOC courses into the local educational environment. He will discuss various aspects including geographical challenges, lack of infrastructure and government programs like SWAYAM, and also explore opportunities improve to professional development and follow-up opportunities for education in the region. (Ref-100)

Chaware., Raut & Deshmukh (2023) In his article authors were discussed about the Open Educational Resources (OER) and role in the library and information science. Authors explain various platforms of OER in their articles. This paper depicts an overview about the open educational resources and involvement & opportunity for library and Information Science.





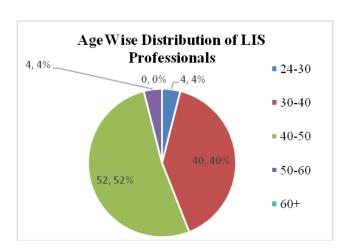


Figure 2: Age wise distribution

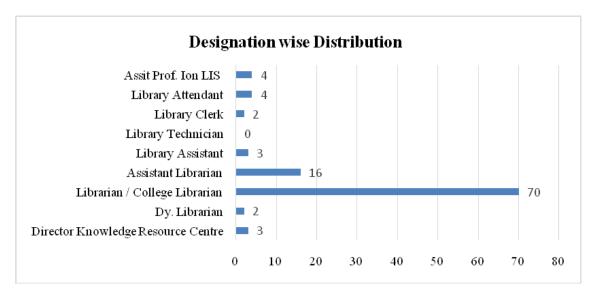


Figure 3: Designation wise distribution

Institutions with better access **ICT** infrastructure will make more use of open resources rather than those lacking adequate infrastructure so, for ensuring equitable access open resources, equitable access technology is must. Even the best e- content is of no significance unless there is a widespread awareness among the common masses on the availability of such resources. Library and information professionals can play a proactive role in this direction by making users abreast with such initiatives.

ANALYSIS AND INTERPRETATION OF DATA

Collected data analyzed with the help of excel and created graphs for better sheet understanding the results. From the above graph 1 it indicates that 63% male and 37% female LIS professionals responded to the questionnaire. From the graph 2 it shows that more than 50% LIS professionals and 40% LIS professionals is 40-50 and 30-40 age groups respectively. It means seniour lis professionals also adopt the new tools & technology in new education system.



Figure 4: Year of experience

From the graph 3 it is found that out of 104 respondents 70 are college librarian and 16 are assistant librarian, 03 are Directors of LIS field and 02 are Dy. Librarian Remaining are the supporting staff of the library.

Above graph 4 indicate that 32 respondents 10–15 year experience group and 28 respondent 05-10 year experience group 02 are above 30+ years of experience in LIS field. It means that 60 respondents have average 10 year of experience.

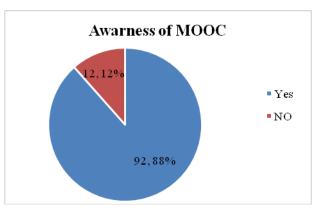


Figure 5: Awareness of MOOC

Graph 5 shows that 88% respondents aware about MOOC and 12% of LIS professionals not aware about it.

Below the graph 6 indicates that 92% of respondent aware about the SWAYAM elearning platform only 06% not aware about it

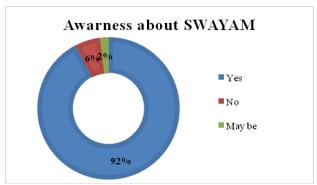


Figure 6: Awareness about SWAYAM

and 2% respondents not sure that they are aware or not.

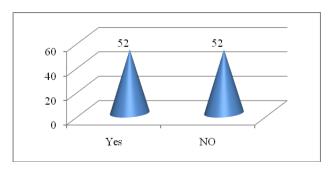


Figure 7: Enrollment on SWAYAM

Enrollment on SWAYAM platform 50% and 50% respondents not enroll them self on it. It means the awareness of enrollment on SWAYAM need to be increases.

Graph 8 reveals that out of 104 respondents 22 was join the SWAYAM for development in professional knowledge and 18 was enroll for

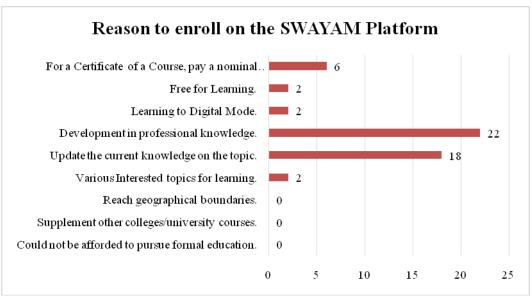


Figure 8: Reason to enroll on the SWAYAM Platform

Table 1: Courses Enrollment in the year 2020

Sr. No.	Name of course/Courses Title	Start Date	End Date	Responses
1	Database and Content Organization	01/06/2020	31/08/2020	2
2	Information Sources & Library Services	01/01/2020	31/08/2020	0
3	Library Automation and Digitization	01/01/2020	31/08/2020	6
4	Digital Library	13/01/2020	29/04/2020	4
5	Web Contain Management	01/02/2020	31/05/2020	4
6	Sr. Secondary Library & Information Science	01/04/2020	30/09/2020	0
7	Koha Library Management System	27/04/2020		2
8	Information Sources & Library Services	01/06/2020		0
9	Library Automation and Digitization	01/06/2020		2
10	Digital Library	06/07/2020	26/10/2020	6
11	Libraries: An Introduction	15/07/2020	31/10/2020	0
12	ICT in libraries	15/07/2020	15/05/2021	0
13	Document Processing and Organisation	15/07/2020		0
14	Web Contain Management	14/09/2020	14/04/2021	2
15	Emerging Trends & Technologies in Library & Information Services (ETTLIS)	01/12/2020	31/03/2021	22

Table 2: Courses Enrollment in the year 2021

Sr. No.	Name of course/Courses Title	Start Date	End Date	Responses
1	BLI-223: Organizing and Managing Information	01/03/2021		0
2	Information Sources & Services	01/03/2021		4
3	ICI Fundamental	01/03/2021		0
4	Digital Library	04/01/2021	26/04/2021	12
5	Communication Skill	01/03/2021		0
6	Document Processing and Organisation	15/02/2021		0
7	Information Sources & Library Services	15/02/2021		0
8	Database and Content Organisation	15/02/2021	30/04/2021	0
9	Library Automation and Digitization	15/02/2021		6
10	Libraries: An Introduction	15/02/2021		2
11	ICT in libraries	15/02/2021		4
12	Library Information and Society	01/03/2021		0
13	Web Contain Management	31/01/2021	30/04/2021	0
14	Digital Forensics	05/07/2021	23/10/2021	0
15	Digital Library	05/07/2021	31/10/2021	2
16	Sr.Secondary: Library & Information Science (339)	01-Nov-21	31-Mar-22	0
17	BLI-221: Library Information and Society	01-Sep-21		0
18	BLIE-226 Management of Library and Information Centre	01-Sep-21		0
19	BLII-013: Information Sources and Library Services	01-Sep-21		0
20	Digital Library	05/07/2021	31/10/2021	0
21	Library Automation and Digitisation	01-Sep-21		6
22	Sr.Secondary: Library & Information Science (339)	01-Apr-21	30-Sep-21	0

updating the current knowledge on the topic. From all 104 respondents only 6 was admit the course for certification. 2 responses each for Free for learning, Learning to digital mode and various interested topics for learning. 0 response get to reach geographical boundaries, supplement to college/ University course and could not be affordable to pursue formal education.

From the table 1, In the year 2020, 50 responses received from that 22 was enroll to the emerging trends & technologies in library &

information services, 6 was admitted in Library automation and digitization, and digital library each. It means LIS professionals enroll technological support courses as compare that theoretical course.

Analysis of table 2 find that in the year 2021 only ICT base courses enrollment from the LIS professional Digital library 04/01/2021 to 26/04/2021 (12 responses got), Library Automation and Digitization 15/02/2021 (6 responses got), Library Automation and Digitization 15/09/2021 (6 responses got). ICT

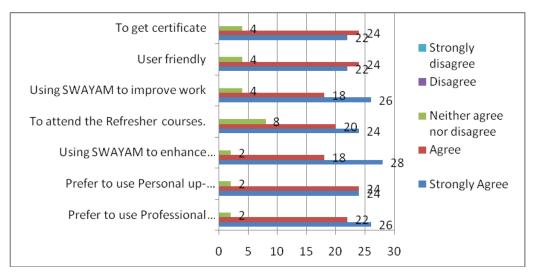


Figure 9: Attitude for using SWAYAM

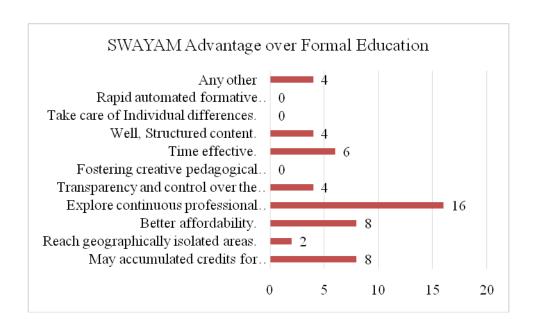


Figure 10: SWAYAM advantage over formal education

ICT in libraries 15/02/2021 (4 responses got). It means library professionals curious about learning the new technologies apply in library.

From graph 9 it is indicated that 90% of respondents agree or strongly agree to 1) Prefer to use Professional Development 2) Prefer to use Personal up-gradation 3) Using SWAYAM to enhance efficiency 4) To attend the Refresher courses. 5) Using SWAYAM to improve work. 6) User friendly 7) To get certificate. It means all the respondents

positively used the SWAYAM platform and their study.

Graph 10 indicates that 16 respondents said that explores continuous professional development. 8 sad that better affordability and may accumulate credits from university each. From that graph we said that we can explore our professional knowledge through SWAYAM platform without disturbing the regular works and get credits from that course too.

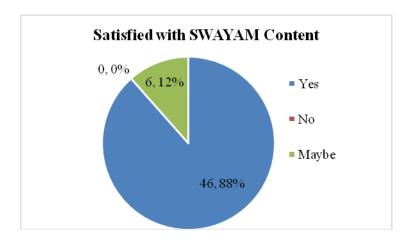


Figure 11: Satisfied with SWAYAM Content

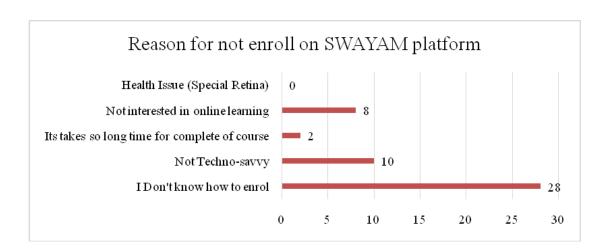


Figure 12: Reason for not enroll on SWAYAM platform

Graph 11 shows that 88% respondents satisfied with the contend which is available on SWAYAM platform. From that we say it is popular day by day. From 104 responses nearly 50% respondent not use the SWAYAM platform nor enroll on themselves on it when researcher ask the reason 28 respondents not aware about how to enroll on it. and 10 respondents not techno-savvy to used it. 08 respondents refuse the online learning. 02 respondents not enroll themselves because it takes too much time to complete the course.

Suggestions

- I) Course regarding school library will be increases.
- II) Descriptive questions answers system introduces while for exam and assignment.
- III) Education through mother tongue is required.
- IV) Make one Orientation lecture for how to enroll and use the courses on SWAYAM platform.
- V) Many professionals suggest that short duration courses needed.

VI) Swayam must improve its mobile application and make it more user friendly.

VII) Technical training should be there to all rural and non-techno savvy student as well as professionals

VIII) Assignments and Quiz's recognition system should improve.

FINDINGS AND CONCLUSION

From the above study researcher find some facts those are mention below

52% respondents 30-40 age group it means senior professional also use the SWAYAM platform to adopted the new tools and techniques.

Motley Use of SWAYAM platform *by college librarian, awareness needed among the other supportive staff of the library and library profession.

From 104 respondents 60 respondents have average 10 year of experience in LIS field.

90% of respondent aware about MOOC and Indian MOOC platform SWAYAM. But only 50% of respondents enroll themselves on SWAYAM platform.

22 respondents were joining the SWAYAM for development in professional knowledge and 18 was enroll for updating the current knowledge on the topic.

Study period 2020-2021 only ICT base courses enrollment by the LIS professional rather than theoretical education.

Attitude of respondents positively used the SWAYAM platform and their professional development.

Respondent explore their professional knowledge through SWAYAM platform without disturbing the regular works and get credits from that course too.

88% respondents satisfied with the contend which is available on SWAYAM platform.

28 respondents not aware about how to enroll on SWAYAM platform.

The study awareness of SWAYAM among LIS professionals in Maharashtra state. Swayam platform provide a great opportunity of elearning not only LIS professionals but also to all subject professionals. Every educational institute should have separate arrangement for the students who want to learn from these courses. The recent development telecommunication sector the access to internet has become very much cheap so the learner can take benefit of this development. Marketing of SWAYAM platform its use and its importance in every corner of the India and make easily available on offline mode on mobile base platform because rural and tribal are till far away from the internet and smart phone.

REFERENCES

- 1. Balasubramaniam, M. (2021). Awareness on MOOCs SWAYAM among student teachers with respect to selected variables. *Journal of Educational Research and Extension* 58(2) pp.7-12.
- 2. Baruah, K. (2020). MOOCS And Swayam: India's E-Learning Initiatives. In Ode, D.A., Jogesh Kumar, D.C. *multidisciplinary subjects for research-Vol-ii*, pp.7–9. Red shine publication, Sweden.
- 3. Bordoloi, R., Das, P. & Das, K., (2020). Lifelong learning opportunities through MOOCs in India. *Asian Association of Open Universities Journal*. *15*(1), pp.83-95. https://www.emerald.com/insight/2414-6994.htm. Retrieved on 17 June 2022.
- 4. Chaware, N. M., Raut, A. S. & Deshmukh G., (2023). Role of Open Educational Resources in Library and Information Science. In. Desale, S., & et al. (Eds.), Proceeding of the 6th MUCLA National Conference on 'National Education Policy

- 2020 and Libraries. pp. 399-411. MUCLA, Jalgaon.
- GOI. MHRD. Department of higher Education, (2016). Guideline for development and Implementation of MOOCs. On dated 11 March 2016. Department of Higher Education MHRD, GOI. http://sakshat.ac.in/officeDocumentUploade
 - http://sakshat.ac.in/officeDocumentUploade d/20160411/GuidelinesforDevelopmentandI mplementationofMOOCsOn11.03.2016.pdf Retrieved on 08/08/2022.
- GOI. MHRD. Department of higher Education, (2016a). Guideline for development and Implementation of MOOCs. On dated 11 March 2016. Department of Higher Education MHRD, GOI.
 http://sakshat.ac.in/officeDocumentUploade
 - http://sakshat.ac.in/officeDocumentUploade d/20160411/GuidelinesforDevelopmentandI mplementationofMOOCsOn11.03.2016.pdf Retrieved on 08/08/2022.
- 7. GOI. MHRD. Department of Higher Education, (2017 June 1). Guidelines for developing Online Courses for SWAYAM on dated 1 June 2017. Department of Higher Education MHRD, GOI. https://www.ugc.gov.in/pdfnews/3885329_MOOCs-Guideline-(Development-Funding).pdf. Retrieved on 09/08/2022.
- 8. Kanjilal, U., & Kaul, P. (2016). The Journey of SWAYAM: India MOOCs Initiative. In 8th Pan-Commonwealth onOpen Learning (*PCF8*). Commonwealth of Learning (COL) and [Open University Malaysia], https://oasis.col.org/handle/11599/2592 Retrieved on 09/08/2022.
- 9. Kumar, A., (2021). Librarianship Profession in MOOCs Paradigm: Challenges, Opportunities and Recommendation. *IASLIC Bulletin.* 66(3). pp.152-161.

- Kumar, A., Buragohain, D., & Singh, V. (2022) Problems and Prospects of Implementing MOOCs (Massive Open Online Courses) in North-East India in LIS Perspective. DESIDOC Journal of Library & Information Technology, 42(1), pp.11-17. https://doi.org/10.14429/djlit.42.1.17084
 Retrieved on 20 June 2022.
- 11. Mahajan, R., Gupta, P., & Singh, T. (2019). Massive open online courses: concept and implications. *Indian pediatrics*, 56(6), pp. 489-495.
- 12. Pujar, K. (2021). A study on the awareness and e-learning experiences among PG students on SWAYAM portal. *International Journal of Creative Research Thoughts*, 9(5). pp. k153-k157. https://www.ijcrt.org/papers/IJCRT21A610 2.pdf Retrieved on 19 June 2022.
- 13. Shewale, R. (2021). Awareness of MOOC-SWAYAM Among Library and Information Science Professionals A Survey. Research review International Journal of Multidisciplinary, 06(02), pp.7–13. https://doi.org/10.31305/rrijm.2021.v06.i02. 003 Retrieved on 19 June 2022.
- 14. *swayam.gov.in/about* Retrieved on 08/08/2022.
- 15. Uppal, R. (2019). Effectiveness of massive open online course in training higher education teachers. [Doctoral thesis, SNDT Women's University]. Shodhganga. http://shodhganga.inflibnet.ac.in:8080/jspui/handle/10603/259957 Retrieved on 09/08/2022.