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Massive Open Online Course (MOOC): A New Online Learning Approach to LIS Professionals

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Abstract

This study defines the concept of Massive Open Online Course (MOOC) and argues regarding involvement of library and information science professionals in MOOC environment. This study also presents steps required in creation of a MOOC and a comparison of different MOOC platforms. This study may be helpful in knowing-how of the Massive Open Online Course (MOOC) in details.

Key words: Massive Open Online Course (MOOC), Online learning, Library and information science professionals, Online courses, Library and information science.

1. Introduction

Due to emergence of internet and information communication technologies, online learning became possible and popular worldwide. Resultant, users are using online services and platforms for online learning for various purposes. The new innovations in online learning are taking place regularly in which Massive Open Online Course (MOOC) emerged as new Avatar in online learning domain and is gaining popularity rapidly in all disciplines including library and information science domain in a short period of span and also providing deeper impact on online education systems, online learning and online pedagogies. Massive open Online Courses (MOOCs) are being developed in every field worldwide and adding new dimension in online leaning pedagogies due to their characteristics and nature such as massiveness, open for all, free from traditional education, accessible worldwide and so on. Similarly, massive open online courses are also developing in different thematic aspects connected to library and information science. Therefore, libraries, library and information science professionals who are working in respective library and information science schools and libraries are not only getting familiar with MOOC phenomena, platforms, structure, opportunities, challenges and other aspects but also participating in variant MOOCs available either in library and information science domain or their interested topics. On the other hand, library and information science professionals are assisting the MOOCs developers in resolving the various problems related to development of massive open online courses (MOOCs) and also exploring possibilities to get engaged with MOOC environment at a large level.

What is Massive Open Online Course (MOOC)?

The genesis of Massive Open Online Course (MOOC) was tracked back in 2008 year when Stephen Downes (2011) and George Siemens (2005) offered "Connectivism and Connective Knowledge/ 2008 (CCK8)" a for- credit course which made available at the University of Manitoba, Canada. This course reached up to the boundaries of connectivism with Siemens and Downes (2011) used a wide range of platforms such as blogs, forums, wikis, face book etc. and got the registration of over 2200 participants and allowed the participants to participate at large level but offered interconnected learner community and personal learning environment independently. Dave Cormier of University of Prince Edward Island and Bryan Alexander of National Institute of Technology in Liberal Education, were coined the term "Massive Open Online Course (MOOC)", McAuley et al.[1] added. Though MOOC was considered as a

disruptive technology earlier days, but, enough popularity gained by MOOC in the year of 2012 when "New York Times" was declared 2012 as the year of MOOC (Pappano[2]) and new versions of MOOC and some key players such as Coursera, Udacity, Edx, etc. established new benchmarks in massive open online course environment and users get benefitted at large level.

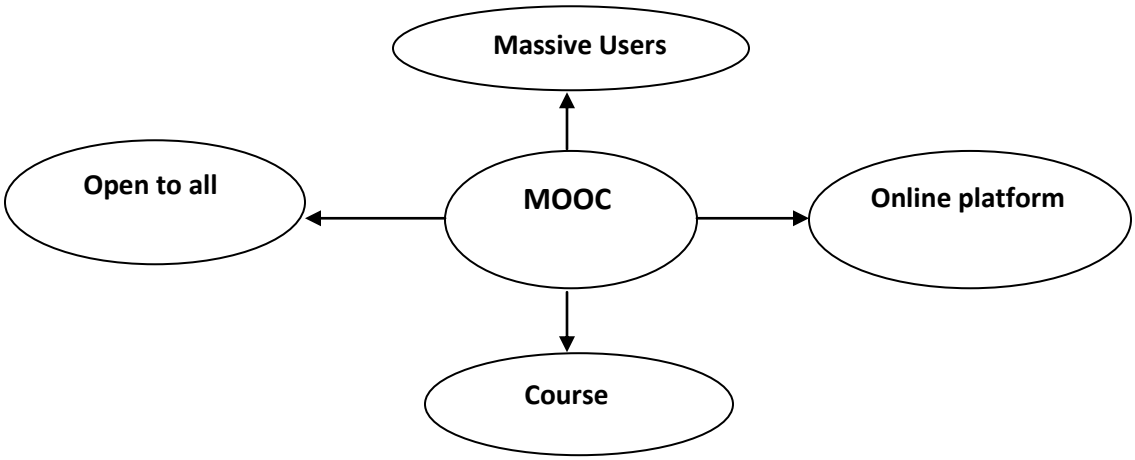

Figure no. 1- Structure of the Massive Open Online Course (MOOC)

MOOC consist of four words namely Massive, Open, Online and Course in which "Massive" denotes large scale participation of participants, "Open" expresses that these courses are open for all without any restrictions, "Online" shows that such courses are available on only online mode on Internet or no face to face attendance or interactions is required for such courses, and last word "Course" depicts about structures of courses offered online to the participants or the concept of a pedagogically designed to online learning.

A Massive Open Online Course (MOOC) contains variety of online reading materials and resources. MOOC is very different online learning model from traditional or online classes wherein limited numbers of students, face-to-face interactions with age attached in particular geographical location in a university /college/institute are essential components. MOOCs offer online courses to unlimited users who resided in various locations or different geographical areas with requirements of no addresses, no age bar and almost no cost too. But, it is mandatory for every user who wishes to participate in MOOCs must have a personal computer and internet connection with his/her.

Wikipedia[3] defined the MOOC as a massive open online course is an online course aimed at unlimited participation and open access via the web. In addition to traditional course materials such as filmed lectures, readings, and problem sets, many MOOCs provide interactive user forums to support community interactions between students, professors, and teaching assistants (TAs).

Therefore, a Massive Open Online Course (MOOC) may be defined as an online learning model in which anyone who has computer and internet connection can participate virtually in any course without the prerequisites of the traditional education system.

Types of Massive Open Online Courses (MOOCs): Massive Open Online Courses may be following two types:

1. xMOOC: - xMOOC is learning courses developed by universities in the United States and based on the traditional model of lectures and self-assessment, quizzes and so on. xMOOC is focused on knowledge consumption. It is emphasized on centered learning and used platforms, automated assessment tools etc. xMOOC based on individual learning on centered location with enrollment arrangement. A teacher plays role as "sage on the stage" in the xMOOC environment.

2. cMOOC: - This type of MOOC is based on a connectivism learning theory. cMOOC stresses on the relationship between course contents and learners community. In the social learning environment, it uses different distributor tools such as social networking sites, student blogs, other kind of teaching tools etc.

to build networks of knowledge and learners. It is emphasized on decentralized location and has lack of enrollment system. An instructor in cMOOC plays role as "guide on the side". cMOOC is mainly focused on knowledge creation.

Different between cMOOC and xMOOC

cMOOC	xMOOC
•Networking-connectivist. • More interaction. •Stress on "social, technical system of learning where the teacher's voice is not an essential hub but a node in an overall network". • Creation/exploration of topic area in "atelier" environment. • Unique products created by students consist of blog posts, images, diagrams, videos). • Discussion forums, Diigo groups, Twitter and other social networking are key components. • Facilitator aggregates, reviews, summarizes and reflects on activity in daily/weekly newsletter. • "Boot-strapped" platform and collaboration tool. •Focused on knowledge creation.	• Cognitive-behaviorist. •Limited interaction. •Pre-determined, instructor-led, structured and sequenced weekly activities. • Consist of short, content-based videos, readings and problem sets. • Contained quizzes (auto-graded), peer-graded assessments. • Discussion forum participation is an optional component in xMOOC. • Delivered via third party platform provider (e.g., Coursera, edX). •Focused on knowledge consumption.

2. Related Literature

Various studies conducted by different authors on variant issues related to Massive Open Online Course (MOOC) and library and information science (LIS) domain where in Klobas[4] presented the characteristics of online open course inclusion with Massive Open Online Course (MOOC) and current practices in MOOC evaluation and data analytics and discovered that current practices of evaluation was dominated by MOOC analytics. Wu[5] discussed that how libraries and librarian can play important roles towards augmenting this hot technology. Kaushik and Kumar[6] presented periodical literature published on Massive Open Online Courses (MOOCs) and library and information science domain in different library and information science journals and magazines and discovered that most articles published by "Public Service Quarterly" on MOOCs and library theme, 2013 year noted as most productive year and majority of articles published by foreign journals and single authors. Kohn[7] study stressed on the development of massive open online courses (MOOCs) offered by different college and universities. This study is further provided paradigms of establish MOOCs and how libraries can play pivotal roles towards MOOCs through The Association for Library Collections and Technical Services (ALCTS) that offers a series of webinar to address the roles of librarian in the online learning. Fowler and Smith[8] argued issues regarding the roles of librarian to assist and advice to the MOOCs creators to obtain permission to use copyright materials in MOOC environment. Signorelli[9] urged to develop the bridge between MOOC developers and libraries in terms of possible support and collaboration in exploring the MOOCs as well as use of MOOCs by librarians as a platform for professional development. Barnes[10] urged to prepare librarians rigorously for enough contribution towards assisting MOOC developers through libraries. This study also discussed copyright issues in MOOC environment. Ecclestone[11] emphasized to take a MOOC into libraries and use MOOC model to develop the skills for of librarians in respect of implementing and successful running the library services on MOOC platform. Bond and Leibowitz[12] highlighted the MOOC issues towards librarians' participation and opportunities as well as challenges coped for connecting library resources particularly serials in MOOC mode. Williams[13] discussed Massive Open Online Courses (MOOCs) in context of Coursera experience. Stephens and Jones[14] expressed their views regarding extensive use MOOCs in library and information science domain for promoting learning environments and professional

development and also discussed the various benefits MOOCS in a diverse way ranging from online learning to large scale professional development. Wilson and Gruzd[15] defined the MOOCs concepts in details and discuss situations, challenges of Massive Open Online Courses (MOOCs) and also urged to use of MOOCs for developments of library and information science profession. Kaushik[16] reviewed the literature published on Massive Open Online Course (MOOC) and library and information science domain in different section. Stephens and Jones[17] discussed the experience and perceptions of librarians and information professionals after participating in library and information science related Massive Open Online Course (MOOC) and also shared the lessons learned and insights gained by actively participation of LIS MOOCs at massive scale.

3. Objectives of the study

This present study contains the following objectives:

- To define the Massive Open Online Course (MOOC) concept.
- To discuss regarding engagement of LIS professionals in MOOC environment.
- To determine the steps required in creation of a MOOC.
- To compare the selected MOOC platforms.

4. Should LIS Professionals Engaged in MOOC Environment

It is very necessary for the library and information science professionals to engage with Massive Open Online Course (MOOC) activities because Massive Open Online Course (MOOC) new online learning model and is spreading over the all disciplines including library and information science field and providing depth impact on online learning environment in every area of subject as well. On the one hand, MOOC is providing great opportunities and challenges before library and information science professionals in which LIS professionals can enhance their technical skills and library and information science practices in best ways by motivating of faculty members to be a part of MOOC, assisting MOOC developers by providing appropriate reading materials and resources for MOOCs, and providing complete solutions for various problems such as fair use of resources and other hurdles faced by MOOC developers for creation and successful running MOOCs to their target audiences. It can be possible for library and information science professionals because LIS professionals are well familiar towards dealing with copyright issues for the resources, open education resources available in diverse subjects as well as familiar with recent technologies and platforms. On the other hand, MOOC is not only providing opportunities to get well familiar with MOOC concept, features, structures and potential usages but also presenting spaces for MOOC movement through which library and information science professionals can develop MOOCs on library and information science topics, collection development, organize conferences, workshops, symposiums, debated etc. and also make strategically thinking towards engaging themselves into MOOC environment at massive level. Apart from above, library and information science professionals can develop library and information science forum and network to resolve the problems encountered before MOOC users as well as MOOC developers and worked as a community manager to solve the problems related to MOOCs development and implementation.

5. Steps needed in creation of MOOCs

The creation of a MOOC is not an easy task complex task. It requires systematic procedure to follow as a project. The following steps may be needed to follow to create a Massive Open Online Course (MOOC):

- **Planning and purpose of a MOOC**: Proper planning and purpose are the key factors to succeed in achieving desired goal. In this context, a MOOC developer should make an effective planning and to know the clear purpose for preparing a MOOC on particular topic. This plan and purpose may be circulated among team of MOOC creation in proper way so that they can give their inputs in creation of MOOC and able to achieve the purpose for which a MOOC is developed. It is imperative to suggest

that before become a MOOC developer, it should be better to take at least a MOOC first on any interested topic in order to get well familiar with MOOC environment and planning to create a MOOC.

- **Target audience**: It should very clear in the mind of a MOOC developer that who are the target audience for the particular Massive Open Online Course (MOOC) and course contents, reading materials, language and presentation of MOOC must be added accordingly to the level of targeted audience.
- **Permission from authority:** Before preparing a MOOC through an institution, formal permission should be taken from higher authorities that include financial and administrative sanction, equipments, persons who involved in creation and development of a MOOC with their individual work responsibility and work load must be mentioned as per everyday schedule.
- **Decide the MOOC contents**: MOOC developer should diligent towards deciding and adding contents for a MOOC. For deciding contents of a MOOC, MOOC developer must focus on subject area, objectives and target audiences of a MOOC. The selection of theme for MOOC must have ability to justify its contents adequately or as a whole so as to this MOOC may attract users enough and also helpful in achieving the goals. Beside this, the contents of a MOOC must be free from copyright constraints.
- **Type of materials used:** Before developing a MOOC, it should decide that what types of the reading materials are to be used within a MOOC. The reading materials may be written documents by the teachers or videos or proprietary resources of the institution or Open Educational Resources (OER) which are freely available on the Web or may be combination of variety of respective resources types. While using different resources or reading material within a MOOC, copyright issues of the resources may not be forgotten otherwise. It is also be mandatory that resources or reading materials are to be used with a MOOC must be fully free from copyright constraints for the convenience of the users.
- **Cost of a MOOC:** Cost of a MOOC includes software, hardware, MOOC platform and other equipments to be used for developing and successful running a MOOC to the users. Software maybe Photoshop, Learning Management System (LMS), Word processing programs, Illustrator, etc., hardware maybe a quality camera, speakers, and so on and platform maybe on institutions' own infrastructure resources on such as Infrastructure as a Service (IaaS) mode or on Software as a Service (SaaS)mode by using an external contractor to provide the infrastructure. The cost of a MOOC may be calculated by considering above mentioned items and human resources engaged in successful running a MOOC without any problem.
- **Requirement of human resources and equipments:** Accurate requirement of human resources and equipments in terms of technical persons such as graphical designers, webmasters, instructional designer, integrator, testers, project manager and other technical staff and necessary equipments had better to decide prior to start to develop a MOOC on specific topic. It is also necessary to all persons who involved in creation of a MOOC must be worked with the full coordination throughout the development of MOOC in order to make quality MOOCs.
- **Selection of platform:** For offering MOOC to the users, MOOC developer should chose appropriate platform for a MOOC which may be either Infrastructure as a Service (IaaS) mode on institutions' own infrastructure or Software as a Service (SaaS) mode using an external contractor to provide the infrastructure. It is suggested that instead of choosing paid platform for a MOOC, MOOC developer should look for free platform and established MOOC platform for the MOOC projection.
- **Testing a MOOC:** Prior to mount MOOC for public use, it is highly suggested that technical quality, objectives, design, layout, voice, presentation, accessibility and so on must be fully reviewed or checked by testers. It is very necessary to ensure to the testers that no line of defectiveness occurred within MOOC than only a MOOC is to be opened for public use.
- **Propaganda of a MOOC:** A MOOC needs to be announced sufficiently far in advance for communication to be possible and for students to be able to enroll. For instance, the major consortiums (Coursera, edX, etc.) announce their courses at least three months before the start date and they regularly communicate their forthcoming program. The announcement for a MOOC is accompanied by two documents namely a syllabus of a course which contains the essential points of the course, its

duration, the prerequisites to follow the course and any relevant information to enable the learners to make their choices and be fully informed when they enroll and second is- a "teaser" for a MOOC – a short video lasting two to four minutes, where the teachers appear, explaining the interest of the course that they are going to give. Both of above mentioned documents may be made available on their institutional portals or on social media. These documents need to be created with the enough care, because they are of crucial tools to attract an audience as much as possible.

6. Comparison of selected MOOC platforms

Though there are many massive open online course (MOOC) platforms are available on the internet which providing access to various massive open online courses on different themes but among them MOOC platforms such as Coursera, Edx, Udacity, Iversity and Udemy considered as most popular MOOC platforms for diverse purposes. Thus, the comparison of the following MOOC platforms are described below:

Table No.1
Comparison of MOOC Platforms

S. N.	Distinguish fields	Coursera	edX	Future Learn	Udacity	Iversity	Udemy
1	**Country**	USA	USA	England	USA	Germany	Turkey
2	**Founded Year**	2013	2012	2012	2013	2013	2010
3	**Types of MOOC**	For profit	For profit	Non profit	For profit	Non profit	For profit
4	**No. of courses**	1563	500+	100+	36+	300 +	40000
5	**No. of students**	15 million	5 million +	2973012	1.6 million	5 million +	10 million
6	**Certificate with fee**	Yes	Yes	Yes	Yes	No	Yes
7	**Types of materials**						
7.1	Educational video	Yes	Yes	Yes	Yes	Yes	Yes
7.2	Audio files	Yes	Yes	Yes	Yes	Yes	Yes
7.3	Quizzes	Yes	Yes	Yes	Yes	Yes	Yes
7.4	Documents	Yes	Yes	Yes	Yes	Yes	Yes
7.5	Presentations	Yes	Yes	Yes	Yes	Yes	Yes
7.6	Hypertexts	Yes	Yes	Yes	Yes	Yes	Yes
7.7	Projects	Yes	Yes	Yes	Yes	Yes	Yes
7.8	Wikis	Yes	Yes	No	Yes	No	No
8	**Accessibility**						
8.1	For users with disabilities	Yes	Yes	Yes	No	No	Yes
8.2	Mobile app support	Yes	Partially	Yes	Yes	Yes	Yes
9	**Structure**						
9.1	Duration of course	Yes	Yes	Yes	No	Yes	No
9.2	Number of session in a course	Yes	Yes	Yes	No	Yes	No
9.3	Enrollment dates and deadline dates	Yes	Yes	Yes	No	Yes	No
9.4	Assessment	Yes	Yes	Yes	Yes	Yes	No

10	**Communication and Collaboration**						
a	Discussion Forum	Yes	Yes	Yes	No	No	Yes
b	Social networking sites	Yes-f, twitter, google+	Yes- f, twitter, google+, linkadin, Youtube	Yes-f, twitter, google+, linkadin	Yes-f, twitter, google+, linkadin	Y es- f twitter, google+	Yes- f, twitter, google+
c	E-mail and technical support	Yes	Yes	Yes	yes	Yes	Yes

Comparison of six MOOC platforms namely Coursera, edX, Future Learn, Udacity, Iversity and Udemy wherein United States of America (USA) is dominating on the other countries as listed in Table no. (1) as far as majority of Massive Open Online Course (MOOC) platforms development are concerned. Among six MOOC platforms, large number of MOOC platforms were founded in the years of 2012 to 2013 which developed on the for profit mode and charging some fee from users for providing certificates after completion of their respective Massive Open Online Courses (MOOCs). As far as number of MOOCs and number of users each MOOC platform have, it was ranging from 36+ courses to 40000 courses and 5 million users to 15 million users. It is interesting to note that all six MOOC platforms were consisted of variety of reading materials ranging from educational video to project files but wiki found in leas number of MOOC platforms. Almost every MOOC platform is supporting mobile applications and also has accessibility to users who have disabilities. It is found that all six MOOC platforms are varying from 6-14 sessions in a period of one week each course in respect of course duration sessions. Similarly, the duration of courses is also varying from 6 to 14 weeks for each course. Further, enrollment date and deadline of each courses was given by four MOOC platforms except two MOOC platforms viz. Udacity and Udemy respectively. Except Udemy, all MOOC platforms were facilitated to the users to do assessment of the each course provided by them in which projects, quizzes, peer assessment, feedback provision were found common methods of assessment. Further, in communication and collaboration area, all six MOOC platforms as mentioned in table no.(1) are having discussion group facility through which each participant of respective courses may be communicate each other for resolving the doubts regarding MOOCs and can provide feedback about the respective course. In the communication and collaboration perspective, all MOOC platforms are providing connectivity through popular social networking sites such as Face book, Twitter, Google+, Linkedin, You Tube etc. and also facilitating e-mail facility and various kind of online technical support in which everyone has opportunities to become an instructor or a learner in MOOC environment.

7. Situation of library and information science professionals in India

Though, some massive open online courses (MOOCs) were developed by different institutions and organizations in India but none massive open online course (MOOC) on library and information science topic was developed by any library or library and information science school or library and information science professional. It is discovered that library and information science professionals in India are understanding concept of massive open online course and its platforms by getting engage in MOOC activities and participating in massive open online courses. In order to gear up movement of massive open online course in library and information science domain in India, it is suggested that library and information science professionals in India should developed the massive open online courses on library and information science topics and editors of library and information science journals should publish special issue on massive open online course and library and information science. On the other hand, library and information science professionals in India should contribute the articles on different topics or issues of library and information science connected to massive open online courses in India perspective.

8. World Wide MOOCs in Library and Information Science

Though, various MOOCs were developed in the area of library and information science domain in which few important MOOCs mentioned below:-

- Guilford Free library provides information about how to enroll in a Massive Open Online Course (MOOC) (http://www.guilfordfreelibrary.org/technology-class-5-massive-open-online-courses-moocs/20369/).
- A popular Massive Open Online Course (MOOC) namely "The Hyperlinked Library" created by Michael Stephens and Kyle Jones by the School of Information at San José State University for Library and Information Science professionals to create a social and networked professional development environment. (https://ischool.sjsu.edu/programs/moocs/hyperlinked-library-mooc).
- OCLC organized a conference on MOOCs and Libraries: Massive Opportunity or Overwhelming Challenge? which provided worthy research studies on MOOCs and libraries aspects. (http://www.oclc.org/research/events/2013/03-18.html).
- The British Library and University of Nottingham are jointly offering MOOCs through Future learn platform and engaging other UK's universities (http://www.bl.uk/press-releases/2015/february/propaganda-mooc).
- In July- August, 2013, a course on "New Librarianship" was offered by iSchool, Syracuse University (http://ischool.syr.edu/landing-pages/admissions/new-librarianship-open-online-course).
- Penn State University library supports MOOCs developers who want to create MOOCs in different topics on Coursera platform by providing guidelines and other necessary instructions and reading materials that may be used fairly with MOOCs (https://www.libraries.psu.edu/psul/researchguides/MOOC.html).
- Jeffrey Pomerantz from North Carolina University, Chapel Hill developed a MOOC namely "Metadata" on Coursera platform in September, 2013 (https://www.mooc-list.com/course/metadata-organizing-and-discovering-information-coursera?static=true).
- In February, 2014 Wendy Newman from University of Toronto created a MOOC on "Library Advocacy Unshushed: Values, Evidence, Action" on Edx platform (https://www.edx.org/course/library-advocacy-unshushed-university-torontox-la101x).
- University of Toronto offered a MOOC namely "Library Advocacy Unshushed" in January, 2015 and also reoffering same MOOC entitled ""Library Advocacy Unshushed: Values, Evidence, Action" (http://www.ischool.utoronto.ca/content/successful-mooc-library-advocacy-reoffered-0) in February, 2015.
- Association of College and Research Libraries (ACRL) (a division of American Library Association (ALA)) developed through a discussion group named as "The Library Support for Massive Open Online Courses (MOOCs) Discussion Group" by the ACRL Board of Directors in 2013 ALA Annual Conference to share information and ideas about how libraries can support MOOCs movement by provisions with creating different MOOCs in their campuses. (http://www.ala.org/acrl/aboutacrl/directoryofleadership/discussiongroups/acr-dgmoocs).
- The Association for Library Collections and Technical Services (ALCTS) (a publication of American Library Association) offered Webinar on "Libraries and MOOCs" in 2013 (http://www.ala.org/alctsnews/items/moocs).
- Department of Library and Information Science at Indiana University-Purdue University Indianapolis (INDIANAPOLIS) launched a massive open online course especially for public libraries on April 6, 2015. (http://news.iupui.edu/releases/2015/04/mooc-library-and-information-science.shtml).

9. Conclusion

In present era, Massive Open Online Course (MOOC) made paradigm shift in online learning in every discipline including library and information science. Massive Open Online Course is offering vast

opportunities as well as challenges before library and information science professionals in which they can explore possibilities to use Massive Open Online Course (MOOC) technology in most effective way in order to prove their profession among the academic community by providing assistance to the professionals of other disciplines who are engaging in development of Massive Open Online Course on different subjects. MOOC technology also provides space for library and information science professionals to become familiar with MOOC concept, structure and other aspects and to develop their skills towards MOOC as a whole so that LIS professionals can play imperative roles in development of massive open online courses in different disciplines and support of MOOC movement at large level.

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