

Online Learning: An Emergence of New Model of Education

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Abstract: *The development of Internet services in modern society day to day life facilitates online learning as the new model of education. During last few decades Information and communication technology has taken revolution in the education. Traditional classroom pedagogy is now converting into the online pedagogy through the Internet. This paper presents the emergence of online learning and its impact as new model of distance education. The various models of online learning like Open Educational Resources (OER), Open Courseware, Learning Management System (LMS) and Massive Open Online Learning (MOOCs) and their impact on E-Learning has presented. Finally, a brief report of various models of Online Learning and its acceptance over worldwide has presented.*

Index Terms: *Online Learning, Open Educational Repositories, Open Courseware, Learning Management System, MOOCs.*

I. INTRODUCTION

Highlight Distance education has come into existence in the 1800 AD at University of Chicago, United States. The university has planned to connect teachers and learners at different locations through correspondence programme. Radio communication has come into existence during World War I and thus it is implemented for distance education as a communication media. During decades of seventy to eighty the development of computer and Internet has expanded distance education rapidly. Thus, online courses were offered in 1881 by many universities and colleges. Online Learning Courses are delivered completely online mode. The online courses may be implemented through learning management system platforms like Blackboard, Moodle and open Edx for content presentation, discussion, conducting online test and evaluation. The online courses may also implement through a combination of emails, podcasts, blogs and Skype and Yahoo Groups based group activities. There is a major challenging problem in online learning is the interaction of learners to the instructors and other learners. This problem may be resolved through the implementation of collaborative learning and social media. Virtual online environment like 'Skype' and 'Second Life' has provide online social interaction with learners. Podcast facilitates the users to incorporate audio contents to the courses. Online learning

has many facilities for distance learning but there are some other factors over physical classrooms which cannot be replaced by online learning. The learner expectations, feeling of isolation, experience and other factors are needed to consider for educators to design and deployment of online courses. Continuous and regular revision for experimentation and reflection produces a better model. The new model performs better for the individual learners, educator and subject matters. There are various modes of online learning. These are discussed bellowed.

II. OPEN EDUCATIONAL RESOURCES

Open Educational Resources (OERs) are any learning contents which are shared under open license. The OER not necessary whether it is part of course or not but it is the educational resources of any kinds. Due to popularity of Learning Management Systems in online learning, the requirement of digital learning resources is feeling. Therefore, national and international groups, academic institutions, universities and colleges are developing their repositories for their members. This is the new idea to develop the educational repositories and share the contents to their groups. Unfortunately, this idea is new but helpful for pedagogical aspects. Some of popular Open Educational Repositories¹ are listed bellowed:

1. Common Spaces
2. CTE Online
3. Connexions
4. Curriki (K-12)
5. Citizendium
6. Gooru (K-12)
7. Hippo Campus
8. IOER
9. Internet Archives OER Library
10. Knowledge to Work
11. MERLOT
12. NROER (India)
13. OER Africa
14. Open Washington
15. 15. OASIS
16. OER Commons
17. Skills Commons
18. The Orange Grove
19. Temoa
20. Teaching Commons
21. Wisc-Online
22. Wiki Educator

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¹ https://www.cccoer.org/learn/_nd-oer/general-oer/

A. Open Courseware

Open Courseware (OCW) is the subset of open educational resources. OCW focuses on educational materials associated with a particular course at a given institution. It may include video lectures, readings, images, assessments and many more learning materials related to a particular course. An OCW is a freely available and open digital publication high-quality educational materials from top universities and colleges. These learning materials are developed and organized as courses. It often includes course planning materials and evaluation tools as well as thematic content. OCW are freely and open licensed, accessible to anyone, anytime via the internet.

1. Some popular Open Courseware² are as followed:
2. Carnegie Mellon University Open Learning Initiative
3. John Hopkins School of Public Health Open Courseware
4. Lumen Learning
5. MIT Open Courseware
6. Mountain Heights Academy Open Courseware
7. The Open Academy
8. Open Course Library
9. Open Education Consortium Course Search
10. Open Learn
11. Open Michigan
12. Open Yale
13. Saylor Academy
14. TU Delft Open Courseware
15. Tufts Open Courseware
16. Wikiversity
17. NPTEL (India)

III. LEARNING MANAGEMENT SYSTEM

A learning management system (LMS) is a virtual learning platform to run online courses. This is software application for the documentation, administration, reporting, tracking and delivery of educational courses for the learners. LMS is a concept emerged from e-Learning, which have encouraged distance education a lot. A LMS is a web based or it can be a cloud based software program which assist in teaching learning processes. LMS helps in effective delivery of training, instruction and development program. The LMS provides facilities for the learners, instructors and administrators to use and access of services. It is beyond the restriction of place and time in teaching and learning process. Technical definition of LMS is the term as: A LMS is a software application for the administration, documentation, tracking, reporting and delivering by e-learning educational courses. LMS has two specifications which is largely affected the users:

1. LMS useful for the individual needs for the institutions for the special needs line online training programs or virtual classes throughout the campus. The LMS may be useful and very

effective for a university or academic purpose but it need not necessary that it will suit to the industries.

2. Technically the LMS is the well-groomed assistant for the continuous support for online pedagogy. There may be some technical issues fall during running the LMS. Other popular names which are used in the place of LMS are Course Management System (CMS), Virtual Learning Environment (VLE), Personal Learning environment (PLE), Training Management system (TMS) and E- Learning Courseware. The terms like PLE, CMS, and VLE mostly serves the educational sector while TMS is widely used in industries and business sectors.

LMS has different categories depending upon their usage and accessibility. Different LMS according to their categories are discussed as followed:

A. Open Source Learning Management System

The open source LMSs are learning management platforms which are available under a public and free license. It providing users the rights to use, to modify, to create, to study and to distribute the results, free of charge, to anyone and for any purpose. Some top open-source LMSs are listed as followed:

1. Canvas
2. Chamilo
3. Moodle
4. Open edX
5. SAKAY
6. Totara Learn

B. Cloud Based Learning Management System

Cloud based learning management system are software application based on cloud computing feature. The Cloud based LMS delivers the education online to any student, at anytime and anywhere around the world. Students connected with cloud based LMS may access through LMS at anytime from anywhere in world. They learners need to connect through the cloud network via Internet connection using accessing devices like personal computer, Laptop or smart phones. Some cloud based LMS are listed as followed:

1. Adobe Captivate Prime
2. Docebo
3. Digital Chalk
4. Firmwater LMS
5. iSpring Learn
6. Litmos LMS
7. Talent LMS

² <https://www.ccoer.org/learn/nd-oer/open-courseware/> Last accessed on 15/02/2019

C. Proprietary based Learning Management System

Learning management systems are developed by private firms. This is licensed by their developers under the legal rights belonging to the copyright owners. Some popular LMS in this category are as followed.

1. Blackboard
2. Design2Leran

Moodle is a popular learning management system. It is Modular Object-Oriented Dynamic Learning Environment developed by Martin Dougiamas, A professor of Computer Science at Australia. Moodle is free and open source software and source code is available under GNU public license. Moodle is a very popular in all over the world and running in various universities and colleges. It provides a virtual learning environment for online teaching-learning. Moodle is a Learning Management System (LMS) which consists of large number of courses and users. Basic organization unit of Moodle is course. A course is organized into middle column of the Moodle page. Course is organized into sections and each section is corresponds to weekly plan. Each section includes different activity and resources. At both sides of the Moodle page, some other elements of Moodle are displayed such as Blocks, Recent activity and online users etc. In Moodle, user is its constituent part and users can enroll into different courses as Administrator, Teacher or Student. Each role has some constraints to access and control the Moodle contents. Moodle has its 3 constituent elements. By observing the user pattern of LMS, we identify 3 stakeholders of learning management system:

Administrator

Administrator keep the proper flow of operation of services and its users. He is responsible to enrollment of the users manage the courses and run the system.

Instructor

The instructor usages LMS to supervise, guide, assist and evaluate the learners.

Learner

Learners are the main users of Learning Management System and they are the first consumer of the services.

IV. MOOCs

Massive Open Online Courses (MOOCs) are online courses for massive people to enormous information without any border, race, gender, class and income.

The initiative of MOOC may be situated within framework of large digitized open educational resources which are freely offered and open to students, teachers, researchers and self-learners for teaching, learning and research. There are big changes in advancement in E-learning during last few decades. One specific initiative that emerges popularly

among students, teachers, researchers and self-learners is Massive Open Online Courses (MOOCs). Recent advances of the development in online education and Massive Open Online Courses (MOOCs) has indicated that a revolution in education is about to happen. The common claim is that these new technologies will enable democratization of education, allowing everyone to receive the same high-quality education whether they live in any part of the world. MOOCs like Edx, Coursera, and SWAYAM etc. are spreading knowledge through-out the world. The term MOOCs was first started by George Seimens and Etephen Downes in 2008; it gained popularity after Professor Sebastian Thrun started free MOOCs classes at Stanford University, USA. Any person having internet connection can join it, access it and interact with other scholars registered in the MOOCs. MOOCs have influenced the involvement of corporate into academy and online learning. Many MOOCs are non-commercial and designed by prestigious institutions to market their institutional brand globally. MOOCs are categorized into two parts; xMOOCs and cMOOCs.

A. xMOOCs

MOOCs follow cognitivist-behavioral approach. xMOOCs are composed of video recording of classroom lectures, lecture notes, textbooks, articles, quizzes and assignments, which are prepared based course syllabus by the instructors. In such types of MOOCs Students engaged in learning through weekly learning plan by watching video lectures, reading assigned textbooks, discussion with other students via online forums, submitting assignments and preparing assigned projects. Students may submit their problems and queries to instructor on the discussion forums or through the E-mail.

B. cMOOCs

cMOOCs are designed with the concepts of connectivism. In these MOOCs the participant is connected to each other and each participant has some knowledge. This is based on the concept that learning is a process of seeking information from human or non-human sources. The participant who want to learn something, connect to that person who have some knowledge related to that topic and share their experiences. It may be also possible that the student is connected to some other non-human sources like intelligent tutoring system, and then student put their query to the tutoring system and tutoring system responses according to students learning experiences. Some popular MOOCs³ over the world are listed in Table 1.

Table 1: The Best MOOC Platforms of 2018

MOOCs	Score	Rank
Coursera	8.8	1
edX	7.4	2
FutureLearn	6.4	3
Cognitive Class	5.6	4
iversity	3.4	5

³ <https://www.reviews.com/mooc-platforms/the-best>. Last accessed 22/01/2019

Udacity	0.4	6
SWAYAM (India)	-	-

V. CONCLUSION

The revolution of ICT now facilitating Internet access to end users. Thus, online learning getting popularity among the learners and habits to their day to day life. There are different platforms of online learning which are popular among the learners. Many universities are running their courses through online mode and providing online certifications. Thus, online learning is becoming pioneer field on distance education. MOOCs is emerging as the business model of online learning where industries running online courses over the worldwide.

REFERENCES

1. Abras, C., & Krichmar, D.,M. (2003). History of emergence of online communities. Encyclopedia of community: From village to virtual world. Thousand Oaks: Sage Publication, pp. 1023-1027.
2. Harasim, L. (2000). Shift happens: Online education as a new paradigm in learning, Internet and Higher Education, Vol.3, pp. 41-61.
3. Chen, X., & Sun, A. (2016). Online education and its effective practice: A research review. JITER, Vol. 15, pp. 157-190.
4. Open Education Consortium <https://www.oeconsortium.org/>. Last accessed 22/01/2019
5. Ellis, Ryann K., (2009). Field Guide to Learning Management,
6. ASTD Learning Circuits
7. Walker, Scott L.; Fraser, Barry J.(2005). Learning Environments Research, vol. 8 n3 pp. 289-308 DOI: 10.1007/s10984-005-1568-3
8. chaubey, A. and Bhattacharya, B. (2015). Learning Management System in Higher Education International Journal of Science Technology & Engineering, Vol. 2, Issue 3, pp. 158-162, ISSN (online): 2349-784X
9. Hew, K. F. & Cheung, W. S.(2014). Students and instructors use of MOOCs : Motivations and challenges. Educational Research Review, 12, pp. 45-58.
10. Jona, K. and Naidu S.(2014). MOOCs : emerging research, Distance Learning, Volume 35, No. 2, pp. 141-144.
11. Guzdial, M., MOOCs Need More Work; So Do CS Graduates.
12. Communications of the ACM, January, 2014 Volume 57, No. 1, p.18.
13. Emanuel, E.J.(2013). Online Education: MOOCs Taken by Educated few. Nature, 503(7476):342.
14. Adomopoulos, P.(2013). What makes a great MOOCs? Interdisciplinary analysis of student intention in online courses. International Conference on Information Systems, Milan.
15. Singhal, A. and Kushwaha, R.C. (2017). Initiative of MOOCs for Technical and Vocational Education, International Journal of Advanced Research in Computer Science, Volume 8, No. 5, May June 2017, pp. 1-4, ISSN No. 0976-5697.
16. King, C., Robinson, A. and Vickers, J. (2014). Online Education: Targeted MOOCs Captivates Students. Nature, 01/2014, 505(7481):26.
17. Eynon. and Gillani N.(2014). Communication patterns in massively open online courses. Internet and Higher Education, volume- 23, pp. 1826

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MOOCs.

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