MASSIVE OPEN ONLINE COURSES: NEW IMPERATIVE IN EDUCATION

Dr. Vijay Laxmi

Assistant Professor, B. K. M. College of Education, Balachaur, Punjab, India.

Dr. Gobind Singh Gure

Assistant Professor, Vishva Bharti College of Education, Jagadhri, Haryana, India.

ABSTRACT

The continuous uses of technologies in the field of education and also in distance education are constantly influencing on educational and learning perspectives. MOOCs bring a new perspective to both traditional and non-traditional group of learners who are unable to use more traditional mode of education. Still in the infancy stage MOOCs can be used by professionals, in-services training, home study by older people and other disadvantaged groups. MOOCs have recognize the potential value in providing online education via MOOCs providers Coursera, Udemy, Udacity, and EdX. Ways in which MOOC strategies might improve accessibility, student engagement, and lifelong learning opportunities should continue to be explored. MOOCs also present major challenges related to instruction, assessment, and long-term administration and oversight. Further research and analysis regarding these challenges should be conducted to determine what solutions might exist. Such steps will help in making a quantitative change in our educational system and can steer the universities in a new direction by completely recasting distance education through integrating OER and MOOCs.

Key words:- MOOCs, Learners, Technology, Distance education.

International Journal of Research in Engineering, IT & Social Sciences
((ISSN 2250-0588), Impact Factor: 5.07, Volume 5, Issue 3, March 2015)
Website: www.indusedu.org

INTRODUCTION

The 21ˢᵗ century is marked as technological age and new information technologies have transformed and continue to transform – how people live and communicate. In network society Blogging, pocasting, you tube, Wikipedia and real time audio and video screen tools have metamorphosed the way people/user interact with each other. They are interested in exploring and experimenting with PDAs, iPod, pocket PC and mobiles. Teachers today also prefer to use the internet for surfing the World Wide Web to assess relevant materials and data including e-journals and e-books. Also there is an increasing participation and interaction among the internet users including teachers and learners using web 2.0 tools. Besides this, it is well known that learners are accessing digital learning resources over the internet openly and without cost (Srivastava, 2012). In today's information age education has to have a large socio-economic relevance as it has to contribute to the development of a knowledge society, creation of knowledge workers and provide opportunities for life-long learning and education for all. In this background, Massive Open Online Course (MOOC) have emerged as a radically new approach for the access to knowledge to all types of learners pursuing formal, non- formal and informal. MOOCs are open to anyone in the world. They are free to sign up for and the student does not need to be enrolled at the institution offering the MOOC. Courses are delivered online and students can typically work at their own pace. Although MOOC is still at a nascent stage, the overwhelming response it has garnered worldwide can be a sign of the times to come. This paper attempts to know how MOOCS can change the current educational scenario.

EVOLUTION OF MOOC

Massive Open Online Course, abbreviated as MOOC is the biggest upcoming trend in the current education scenario. The term MOOC was coined Canadian educator George Siemens Along with Stephen Downes, he developed a format of online courses which were open to all. It was based on theory called Connectivism and Connective Learning/2008[CCK08] which give an opportunity to a large number of students to connect among themselves. But what really brought MOOCs in the mainstream consciousness was the 'Introduction to Artificial Intelligence' course, offered by two Stanford Professors - Sebastian Thrun and Peter Norvig. Thrun and Norvig streamlined the process of MOOC by creating Udacity, a website which provides information about the upcoming courses, and allows students to sign up for them. Two more companies, *Coursera* and *edX* also started their operations in 2012, each

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offering free online courses from some of the most prestigious Universities of America. They used many platforms such as the forums, blogs and social networking sites and learning changed from a personal to an interconnected one. This concept of MOOC has taken the education world into its folds and students from all walks of life are becoming a part of it.

What is MOOCs?

MOOCs are a form of distance learning that offered an opportunity to all individuals to pursue his education in online mode irrespective of his economic background and physical location. It offers students an opportunity to learn from some of the best professors of the top Universities around the world. MOOC participants (students and educators) are able to join the online class from anywhere in the world. MOOC materials are hosted in a cloud, and accessible from anywhere on the web. MOOCs are transforming the world of distance education and higher education in an unprecedented way.

The Oxford Dictionary, defined MOOCs as "A course of study made available over the Internet without charge to a very large number of people." This essentially means that a student sitting in the remotest corner of the globe but with access to a computer and a fairly high speed internet connection can have access to courses being run at the most prestigious universities of the world like Stanford, Harvard, MIT and others of their league. one of the key differences between MOOCs and the other online approaches is " unlike older forms of online learning, MOOCs are not asynchronous; they are not like recorded class sessions that a student listens to at his/her own pace sitting in a library, completing one lesson and then starting a subsequent one. Rather, they are similar to on-campus courses, delivered synchronously on a defined schedule- usually on a weekly calendar basis. A student in a far-flung location may take a particular lecture and do the related exercises in his/her own time zone during a convenient window of delivery. A student may also make up for missed lectures at his/her convenience, although that will lessen the impact of some aspect of the cohort like approach to learning with fellow students. With MOOCs, lectures are also structured differently."(Voss, 2013)

These courses are absolutely free of charge and are specifically designed courses which can cater to a niche of students and has no bars on factors like age, etc. While it is true that a vast number of Universities have started offering at least one online course, speculation is rife about it being successful in the long run.

Characteristics OF MOOCs?

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MOOCs are built on the characteristics of massiveness, openness, and a connectivist philosophy which is explained as under:

Massiveness: It means MOOCs easily accommodate large numbers of students. More than a million people in the world have taken MOOCs (Carr, 2012). "From a pragmatic perspective, MOOCs provide access to large numbers of people who might otherwise be excluded for reasons ranging from time, to geographic location, to formal prerequisites, to financial hardship" (McAuley et al., 2010, p. 6). The artificial intelligence course developed and conducted by Stanford faculty Sebastian Thrun and Peter Norvig is an example of massiveness as 160,000 enrolled in the course (Martin, 2012).

Openness: Openness involves several key concepts: software, registration, curriculum, and assessment; communication including interaction, collaboration, and sharing; and learning environments. The software used is open-source, registration is open to anyone, and the curriculum is open (perhaps loosely structured and it can even change as the course evolves), the sources of information are open, the assessment processes (if they exist) are open, and the learners are open to a range of different learning environments (Rodriguez, 2012).

Connectivism: MOOCs offer an emerging online teaching methodology inspired by a connectivist philosophy. The MOOC format is commonly referred to as c_MOOCs (Connectivist Massive Open Online Courses). Connectivism values autonomy, diversity, openness, and interactivity (Rodriguez, 2012). Connectivism teaching strategies allow an instructor to assume the role of facilitator with learners actively interacting with other students. It is not a knowledge transfer from instructor to learner in a single learning environment (Kop, 2011). But active engagement and interaction are key MOOC instructional methods.

Types of MOOCs

Based on different pedagogical emphases and organisational models two basic approaches that have emerged are one which Daniel (2012) refer c-MOOCs based on philosophy of connectivism and networking   and other x-MOOCs developed by US institutions that follow a behaviourist approach.

 c-MOOCs: online courses based on the philosophy of connectivism and networking (Downes,2008; Siemens,2012). In c-MOOCs, courses are typically developed and led by academics through open source web platforms. Reading and presentations are freely available on the web, that are supplemented with materials and presentations contributed by the

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facilitator and invited experts. Through the web based platform the learners are supposed to connect to each other and interact with the resources and share openly their contributions, thereby enhancing collaborative creation of knowledge. Learning is expected to take place through creativity, autonomy and social networking (Siemens, 2006; Rodriguez, 2013). In c-MOOCs the learner's autonomy, peer- to- peer learning and social networking are emphasized (Siemens, 2012).

xMOOCs: it is traditional video presentation and testing and automated feedback through objective, online assessment (i.e. multiple-choice quizzes, programming assignments or peer review exercises etc.). The aim of this design approach is to allow the platform to repeatedly run the same classes throughout the year on a rolling recruitment basis, with the best performing students from the previous cohort asked to act as community teaching assistants for the subsequent cohort-providing forum moderation, technical support and limited academic guidance. It is based on a tutor –centric model that establishes a one- to- one relationship to reach massive numbers (Siemens, 2012).

To whom are for MOOCs?

- **Working Professionals:** For those seeking additional skills and training, MOOCs that focus on a work-related topic can be a source of professional development. These learners may be interested in taking away proof of course completion and learning achievement, and also be motivated by the opportunity to meet others in their field and build a professional network. BlendKit2012, a recent MOOC designed to "provide assistance in designing and developing a blended course," is one example, which according to facilitator and OCW panelist Kelvin Thompson, included a digital badges system, as well as different levels of participation.

- **College and University Students:** Academic credit is one of the latest options associated with MOOCs as offered by partnerships like the one between Coursera and Antioch University, which "can reduce costs, to complete a four-year degree and expand course offerings." Another recent collaboration between edX, the Harvard and MIT MOOC initiative, and community colleges focuses on workforce readiness, leveraging online materials with existing community college resources to better prepare students for future jobs.

- **Prospective College Students:** The University of Wisconsin's Math MOOC aims to serve high school students and "individuals who have been away from formal

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instruction," who are getting ready for college-level work, as well as current students needing extra practice, and those preparing for college entrance exams (e.g., SAT, GRE).

- **Lifelong Learners:** For those interested in learning more about a specific topic, who don't need academic credit or certification, MOOCs can, provide the content and often a social learning environment that encourages sharing and discussion. This most closely describes the students in connectivist MOOCs, like the Design Thinking MOOC and Ed Startup 101, which have drawn students interested in the subject matter and collaborative experience. More structured offerings, like those from Coursera and Udacity, are also options for lifelong learners who add to the diversity of the student populations studying together in MOOCs.

Who offers MOOCs?

There are many universities and other institutions worldwide partner with external providers, the largest including US-based Coursera, Udemy, Udacity, and EdX, and Australian MOOEC. Some providers specialise in particular areas of study.

- Coursera's features 500+ courses, from more than 100 partners worldwide, including Duke University in the US, Peking University (China) and the University of Amsterdam in the Netherlands.

- Udemy offers free and paid-for courses, many from non-academic instructors.

- Udacity focuses on free courses, categorised into beginner-, intermediate- and advanced-level. Students may also enrol in a number of paid-for courses in order to gain California State University system credits. Recently Udacity announced a partnership with Georgia Institute of Technology and AT&T to provide a Master of Science in Computer Science MOOC course at a cost of $6,600.

- EdX is a non-for-profit provider, created by Harvard and MIT (Massachusetts Institute of Technology) universities. Today partners include the Australian National University, TU Delft (the Netherlands), and Rice, Berkeley and Georgetown universities in the US. EdX also offers ID verified certificates of achievement, for a minimum fee.

- MOOEC, launched in November 2013, offers free courses and lessons in English supported by Pier online, the University of Queensland ITCE, Griffith University

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GELI, Queensland University of Technology, Goldcoast TAFE and many non-government providers. The courses offer English language learning all levels.

- Around the world, other MOOC providers include EduKart in India, ALISON in Ireland, and Aprentica in Latin America.

Pedagogy of MOOCs

Unlike traditional courses, MOOCs require videographers, instructional designers, it specialists and platform specialists. The virtual platform are designed to be available to students at all times (24x7) during the course, and often have the same technological requirements as media sharing websites due to the large number of students involved with a class. As a result, MOOCs use cloud computing design and other modern technology involved with application software. Course delivery includes synchronous and non-synchronous access to lectures, video and other learning material, exams and assessment, as well as online forums. Sustainable engagement of the learner is also a core concept behind course delivery.

Activities usually conducted online in MOOCs are:

- Online presentation of information through lecture ,video or even course materials from other resources;

- Interactive exploration of the materials through wikis, discussion forums and other collaborative activities; and

- Assessment through machine-graded multiple-choice quizzes or tests and peer-reviewing/ peer grading of written assignments in the form of essays or projects and other evaluation activities.

Thus, it facilitates the learning that happens in a more informal sitting. Learners are control in a non linear way means where, what, how and with whom they learn.

ADVANTAGES OF MOOCS

Although much controversy surrounds the idea of MOOCs, studies have cited several advantages.

- **Accessibility:** MOOCs, being typically low cost or free, create irresistible appeal for recruiting potential participants. The online format of MOOCs offers access and flexibility and eliminates the need for prerequisites. MOOCs have not been limited to college students, and/or professionals, but even younger students can participate in the MOOC experience.

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- **Opportunity:** A lot of students around the world dream about getting the opportunity to enroll in an Ivy League University. However, due to stiff competition and limited number of admissions, only a select few are able to gain admission to these Universities. MOOCs offer an opportunity for these aspiring students to realize their dream, as they get the chance to enroll for a courses offered by these Universities.

- **No Formal Requirements:** All MOOCs required from a student is connectivity to the Internet, so that one can access the course material. There is no age bar, or formal qualification, that one needs to have before signing up for a course. This feature of MOOCs makes it an appealing prospect for working professionals and the elderly, who want to learn new skills and enhance their knowledge.

- **Cooperation:** Colleges and Universities around the world celebrate the diversity that they have on their campuses. With MOOCs, the same sense of multiculturalism is bred on the message boards and forums, where hundreds of thousands of students exchange ideas with each other, and discuss their viewpoints. The fact that you are not competing, but collaborating with fellow students fosters a sense of togetherness and cooperation.

- **Student Engagement:** MOOCs are designed to enhance student engagement as improving student outcomes is one of the primary goals. Student and instructor participation, motivation, instructional method, and delivery are all important aspects necessary to create a MOOC environment conducive to learning. So MOOC educators play a vital role in enhancing student engagement. Student engagement can be enhanced as instructors recognize the learning styles of students and adapt their teaching strategies accordingly. Understanding the responsibilities of students, facilitators, and institution administrators is essential to ensuring the enhancement of student engagement in MOOCs now and in the future.

- **Lifelong Learning Experiences :** According to de Waard (2011), "lifelong learning skills will be improved, for participating in a MOOC forces you to think about your own learning and knowledge absorption" (p. 2). MOOCs allow participants to pursue a particular interest or to continue their professional development. Beyond MOOCs conventional lifelong learning experiences, educational opportunities exist for underprivileged populations as a way to encourage lifelong learning. In addition,

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employers can utilize MOOCs to keep employees abreast of the competitive labor market throughout their lifetime and in a way that is cost-effective.

- **Force professors to improve lectures.** Because the best MOOCS are short, usually an hour at the most, addressing a single topic, professors are forced to examine every bit of material as well as their teaching methods.

- **Offer interesting business opportunities.** Several new MOOC companies launched in 2012: edX by Harvard and MIT; Coursera, a Standford company; and Udacity, which focuses on science and tech.

Different Challenges in the Way of MOOCs

Although some educators recognize the advantages of MOOCs, several challenges exist. Among the most common challenges are individual instruction, student performance assessment, and long-term administration and oversight.

- **Non Accreditation:** The challenge with MOOCs currently is with their non-accreditation. After putting in hard work and effort in completing a course, students do not get academic credit, and there is no official recognition of the same. Efforts are being made to consider MOOCs as college credits, but overall, somebody signing up should not pin his hopes on getting some credits from it

- **Overcrowding**: In every University, the faculty-to-student ratio is an important parameter, and it is used to gauge the level of attention a professor will be able to provide to each student. When there are fewer students in the classroom, a professor can work on the strengths and weaknesses of each student, and provide him with support and motivation. The structure of MOOCs makes it impossible for a professor to pay his undivided attention to each single student, as a result of which, many students may get the feeling that they are 'on theirown'.

- **Unreliable Grading Structure:** for all assignment/work in MOOCs students get a computerized rating for his work, done with the help of software instead of tutor, or an assistant, or for that matter, at least a human grading. Grading the assignment of thousands of students is a major challenge in MOOCs, and although the help of software can be taken in the case of grading multiple-choice questions, grading research papers, dissertations, essays, etc., remains a major challenge.

- **Lack of Motivation:** MOOCs are free; there is no financial penalty or loss associated with not completing them. Also, as discussed before, majority of colleges do not grant

them the status of college credits. Completing an MOOC may add a skill to your resume, but it won't make or break a job offer. As such, there is no real motivation to complete it. Unlike college courses, where the prospect of becoming employable drives many students to complete a course, there is a lack of motivation in completing an MOOC.

- **High Attrition:** Signing up is as easy as it gets, but religiously studying to complete the course is a different thing altogether. According to statistics, only 10% of students who start an MOOC are able to complete it. It is also being reported that interest wanes in an MOOC over a period of time, and many quit before even competing their first assignment.

- **Individual Instruction: MOOCs** require course delivery to a large number of learners. They attract a wide variety of students with different learning styles from all around the world. It is a challenge for instructors to engage students, maintain their interest in the course, and tailor the learning environment to fit the need of each student.

- **Student Performance Assessment: One** of the biggest challenges of MOOCs is the assessment of student performance (Rodriguez, 2012). Cheating presents a major challenge of online education (Carr, 2012). How to validate original work to prevent or detect plagiarism is one of the widely discussed challenges in online education (Cooper & Sahami, 2013). Some solutions for the challenge are being proposed by institutions that offer MOOCs. For example, Udacity and edX use test centers for their online courses. However, the cost to students presents a barrier. Coursera attempted to use plagiarism-detection software in detecting cheating. Also, machine learning has been proposed to identify cheating by the analysis of learner behavior.

- **Long-Term Administration and Oversight:** Those on the front lines of MOOC development and implementation warn that, although MOOC's might be open and free to participants, the costs to institutions can be significant. For example, course development assistance through edX can reach upwards of $250,000 per course with an additional $50,000 fee each time the course is offered (Kolowich, 2013b). For instructors who develop their own courses, human resource needs include course development (typically 100 hours) and course management (8-10 hours per week) in addition to existing professorial duties. Some institutions have rejected the MOOC

concept not because of resources, financial or human, but because of philosophical differences citing that MOOCs are contradictory to the overarching institutional mission (Kolowich, 2013b). Other institutions remain cautious and are waiting for the hype to subside. Government and policymakers are looking at MOOCs through the lens of affordability and accessibility. Faculty are raising questions about the influence of MOOCs on academic freedom, relevancy to institutional mission, and instructional quality.

Final Words and Recommendations

The continuous uses of technologies in the field of distance education are constantly influencing on educational and learning perspectives. MOOCs bring a new perspective to both traditional and non traditional group of learners who are unable to use more traditional mode of education. Still in the infancy stage MOOCs can be used by professionals, in-services training, home study by older people and other disadvantaged groups. MOOCs have recognize the potential value in providing online education via MOOCs providers *i.e.,* Coursera, Udemy, Udacity, and EdX, ways in which MOOC strategies might improve accessibility, student engagement, and lifelong learning opportunities should continue to be explored. MOOCs also present major challenges related to instruction, assessment, and long-term administration and oversight. Further research and analysis regarding these challenges should be conducted to determine what solutions might exist. Such steps will help in making a quantitative change in our educational system and can steer the universities in a new direction by completely recasting distance education through integrating OER and MOOCs.

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