

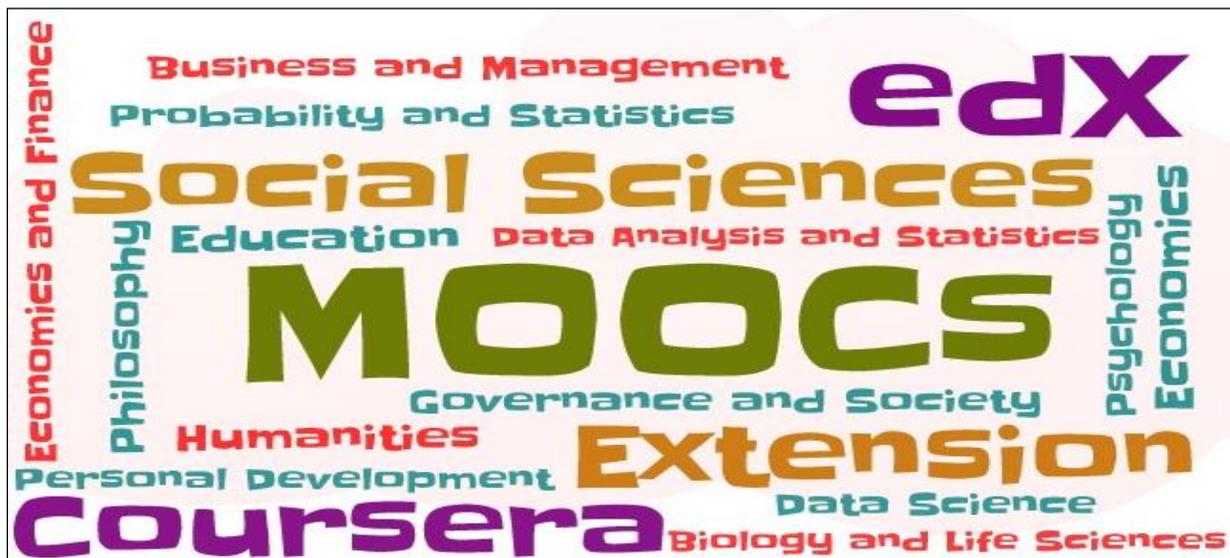
MASSIVE OPPORTUNITIES FOR KNOWLEDGE UPSCALING: The Unharnessed Potential of Massive Open Online Courses (MOOCs)



Breaking the barriers of space, time, and cost, MOOCs redefined the global educational landscape by making content more universal. Though the debate is still going on regarding the success of MOOCs in addressing the knowledge divide, they are surely undervalued by the present agricultural curricula and underutilized by the student community. In this blog, Sreeram Vishnu makes an attempt to highlight the present status of MOOCs and compiles some of the interesting and informative MOOCs offered by some of the popular MOOC platforms that are relevant to social science professionals in agriculture.

CONTEXT

The term Massive Open Online Courses (MOOCs) is not new to most of us. Simply stated they are a form of creative disruption in the field of education (Box 1). Hailed as an educational revolution, MOOC describes an evolving ecosystem of open online learning environments, encompassing a spectrum of course designs (Emanuel 2013; Rodriguez 2012). MOOCs are a model of learning that offer open enrolment free of cost, which can lead to ‘massive’ levels of participation in terms of numbers and diversity. On an average, the shortest MOOCs are two weeks in duration, and the longest, sixteen weeks. The modus operandi of most of the MOOC platforms is simple – learners can access all the content free of charge, but need to pay a fee to access assignments and get the necessary certification for the course (Mallya 2017; Higher Education Academy 2017). Essentially, they challenge the conventional learning evaluation practices that rate course completion as greater than the quality of learning (Higher Education Academy 2017). Disruptions created by MOOCs in the global educational arena even prompted *The New York Times* to name 2012 as the ‘Year of MOOCs’ (New York Times 2012).



Box 1: Massive Open Online Courses (MOOCs)**Who and Where**

The term 'MOOC' was originally articulated by Dave Cormier (University of Prince Edward Island, Canada) to describe a course developed by George Siemens and Stephen Downes on 'Connectivism and Connectivity in Knowledge' in 2008.

When

Though the origins of MOOCs can be traced back to the early 2000s when open source, open access and open courseware movements appeared (Zawacki-Richter & Naidu 2016), it was in 2008, when the first MOOC was started, which is hailed as a landmark for networked learning.

Why

MOOCs evolved from the open educational resources (OER) movement as a way to connect open access digital materials to networks of learners, and may be considered a continuation in the development of distance education (Daniel 2014).

How

Every course is taught by highly-qualified instructors in a format that may include recorded video lectures, graded assignments, quizzes, discussion forums, and peer-to-peer/peer-to-instructor learning.

The disruptions created by MOOCs in the field of distance education are huge. MOOCs are now more ubiquitous in the sense that they have covered each and every corner of the knowledge sphere, like Science, Art, Religion, Culture, Education, Language, and Technology. Apart from the expected learning, outcomes vary greatly in MOOCs – depending on whether it is designed for language learning, machine learning, for development of soft skills, or with a focus on pure academic topics. So each MOOC is designed uniquely, driven by a particular pedagogical approach, teaching style and content. Interestingly, MOOCs have moved beyond pure academic topics and ventured into fields, such as Film industry (Hollywood: History, Industry, Art on the EdX platform), Business (Digital marketing on the Coursera platform), Tourism (Tourism and travel management on the EdX platform), Automobile industry (Electric cars: Introduction on the EdX platform), Governance (Improving leadership and governance in nonprofit organizations on the Coursera platform) and Religion (Buddhism through its scriptures on the EdX platform). However, MOOCs are basically categorized into two, based on the pedagogical principles followed, which in itself is an interesting topic. It is briefly discussed Box 2 below.

Box 2: Types of MOOCs

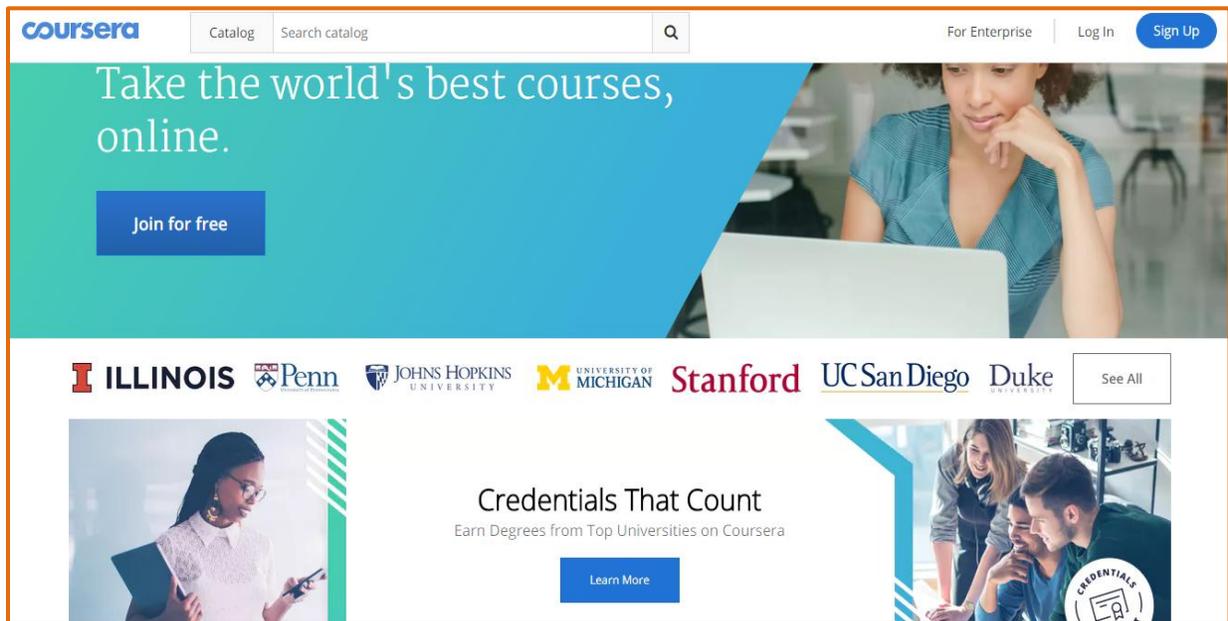
A review of the whole discourse on MOOCs is dominated by two terms, viz., cMOOCs and xMOOCs (Bayne and Ross 2014). Connectivist MOOCs (cMOOCs) are considered as primitive forms, which are loosely structured, built around the interaction of the participants and based on the connectivist pedagogical principles of learning socially from others, within distributed networks. xMOOCs are more advanced, designed and launched by many commercial platforms (Coursera, EdX, Udacity) by sensing the possibilities for teaching and learning on scale. They are distinct from the cMOOCs in that they follow the instructivist pedagogy. They rely heavily on short videos and quiz assessments with limited interaction between learners. However, high dropout rates of the participants and uncertain business models considerably stymied the smooth progress of MOOCs. This led some of the universities to redesign their online courses, which were then directed towards a smaller audience with restricted access, that was named as Small Private Online Courses (SPOCs) (Higher Education Academy 2017). Another example are blended MOOCs, a hybrid proposal that offers both online and classroom teaching (Olazabalaga *et al.* 2016).

HARNESSING THE POTENTIAL OF MOOCs

In this blog, I have tried to compile some of the useful courses relevant to the agricultural social science professionals from two major MOOC Platforms, viz., Coursera and EdX. The courses are put under various categories so that those interested can sign in to the platform, figure out the desired courses and get enrolled easily. Besides, upon registration with these MOOC platforms, we can stay tuned with the latest courses offered by them through regular email notifications.

Coursera¹

Coursera, founded in 2012 by Stanford professors Daphne Koller and Andrew NG, is an online education company that now offers courses, specialisations, and degrees from 150 of the world's top universities and educational institutions (Mallya 2017).



Logging into the respective course pages would give a brief account of the course, with an overview, a syllabus and other FAQs, including the pricing and prerequisites to attend the course, if any. Some of the interesting courses from this platform are listed below.

Table 1: Courses offered by Coursera relevant to social scientists

Category of course	Course title
Economics	1. Agriculture, Economics and Nature (https://www.coursera.org/learn/agriculture-economics-nature)

¹ <https://www.coursera.org/>

	2.The Economics of Agro food value chains (https://www.coursera.org/learn/valuechains)
Education	1. What future for education? (https://www.coursera.org/learn/future-education) 2.Introduction to multilingual and multicultural education (https://www.coursera.org/learn/multilingual-multicultural-education) 3. Assessment in Higher Education: Professional Development for Teachers (https://www.coursera.org/learn/assessment-higher-education) 4. Powerful Tools for Teaching and Learning: Web 2.0 Tools (https://www.coursera.org/learn/teaching-learning-tools)
Governance and Society	1. Methods and Statistics in Social Sciences Specialization (https://www.coursera.org/specializations/social-science) 2. Become a Journalist: Report the News! Specialization (https://www.coursera.org/specializations/become-a-journalist)
Psychology	1. Foundations of Positive Psychology Specialization (https://www.coursera.org/specializations/positivepsychology) 2. Positive Psychology: Applications and Interventions (https://www.coursera.org/learn/positive-psychology-applications)
Philosophy	1. Philosophy, Science and Religion: Science and Philosophy (https://www.coursera.org/learn/philosophy-science-religion-1) 2 Philosophy and the Sciences: Introduction to the Philosophy of Cognitive Sciences (https://www.coursera.org/learn/philosophy-cognitive-sciences)
Personal Development	1. Effective Communication in the Globalised Workplace Specialization (https://www.coursera.org/specializations/effective-communication) 2. Photography Techniques: Light, Content, and Sharing (https://www.coursera.org/learn/photography-techniques) 3. Creative Problem Solving (https://www.coursera.org/learn/creative-problem-solving) 4. Leadership in 21 st Century Organizations (https://www.coursera.org/learn/leadership-21st-century) 5. Coaching Skills for Managers Specialization (https://www.coursera.org/specializations/coaching-skills-manager) 6. Presentation Skills: Designing Presentation Slides (https://www.coursera.org/learn/slides) 7. Learning How to Learn: Powerful mental tools to help you master tough subjects (https://www.coursera.org/learn/learning-how-to-learn) 8. Conflict Transformation (https://www.coursera.org/learn/conflict-transformation) 9. Teamwork Skills: Communicating Effectively in Groups (https://www.coursera.org/learn/teamwork-skills-effective-communication) 10. Creating Innovation (https://www.coursera.org/learn/creating-innovation) 11. Virtual Teacher Specialization (https://www.coursera.org/specializations/virtual-teacher)
Data Science	1. Data Analysis and Interpretation Specialization (https://www.coursera.org/specializations/data-analysis)

	2. Exploratory Data Analysis https://www.coursera.org/learn/exploratory-data-analysis 3. Introduction to Data Analysis Using Excel https://www.coursera.org/learn/excel-data-analysis
Probability and Statistics	1. Methods and Statistics in Social Sciences Specialization https://www.coursera.org/specializations/social-science 2. Regression Modeling in Practice https://www.coursera.org/learn/regression-modeling-practice 3. Statistical Reasoning for Public Health 1: Estimation, Inference, & Interpretation https://www.coursera.org/learn/statistical-reasoning-1 4. Introduction to Probability and Data https://www.coursera.org/learn/probability-intro

Note: The courses listed are presently announced in the Coursera website. However, this list is not exhaustive, as Coursera introduces and updates courses periodically.

Nowadays, MOOC developers are closely taking into account the demands and needs of their user community. One such example that comes to mind is a MOOC on Coursera, which is particularly dedicated to provide better insights on how to apply to Universities in the United States.² The platform even launched an online course in entrepreneurship, titled ‘Master’s in Innovation and Entrepreneurship’ (OMIE), which demands teamwork from the participants and mentoring support from experienced entrepreneurs. Successful graduates were eligible to get seed funding from HEC Paris, the course partner of Coursera, and can then work at the HEC’s incubator. In 2016, Coursera diversified its focus from individual learners to new arenas – ‘Coursera for Business’ and ‘Coursera for Governments and Non-profits’ – where it aims to work with startups and enterprises, and local governments, respectively. The platform even invested heavily on developing mobile-friendly platforms for those who don’t have access to desktops (Mallya 2017).

EdX³

Founded by Harvard University and MIT in 2012, EdX is the only leading MOOC provider that is both non-profit and open source. EdX courses are powered by the open sources platform, Open Edx, which allows educators to build learning tools and add new features to the platform, creating novel solutions for the learners (EdX 2012). Given below are some of the courses offered by EdX, found to be useful to social science researchers/scholars.

²With over 4,000 universities and no standard application system, the U.S. admission process can be confusing for everyone, especially for students applying from other countries. This course will help international students to navigate the U.S. university admission process by offering practical information about the documents and sections that make up a U.S. university application. (<https://www.coursera.org/learn/study-in-usa>).

³<https://www.edx.org/>

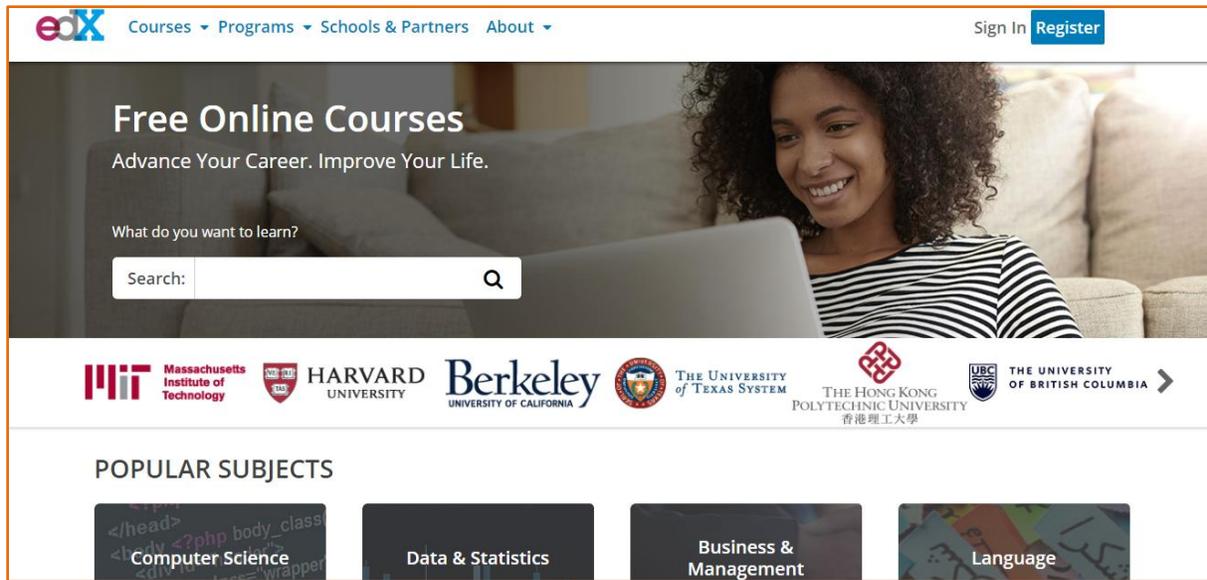


Table 2: Courses offered by edX relevant to social scientists

Category of course	Course title
Data Analysis and Statistics	<ol style="list-style-type: none"> 1. Statistics and R (https://www.edx.org/course/statistics-r-harvardx-ph525-1x-1) 2. Data Visualization for All (https://www.edx.org/course/data-visualization-all-trinityx-t005x) 3. Big Data Analytics (https://www.edx.org/course/big-data-analytics-adelaidex-analyticsx) 4. Big Data Fundamentals (https://www.edx.org/course/big-data-fundamentals-adelaidex-bigdatax) 5. Analytics for Decision Making (https://www.edx.org/course/analytics-decision-making-babsonx-bpet-statx-0) 6. Analytics for the Classroom Teacher (https://www.edx.org/course/analytics-classroom-teacher-curtinx-edu1x-0) 7. Analyzing and Visualizing Data with Excel (https://www.edx.org/course/analyzing-and-visualizing-data-with-excel) 8. Cluster Analysis (https://www.edx.org/course/cluster-analysis-utarlingtonx-link-la-cax) 9. Theory of Change for Development (https://www.edx.org/course/theory-change-development-witsx-tocx) 10. Introduction to Statistics: Descriptive Statistics (https://www.edx.org/course/introduction-statistics-descriptive-uc-berkeleyx-stat2-1x)
Business and Management	<ol style="list-style-type: none"> 1. Project Management for Development (https://www.edx.org/course/project-management-techniques-for-development-professionals) 2. Communication Skills and Teamwork (https://www.edx.org/course/communication-skills-and-teamwork) 3. Problem Solving and Critical Thinking Skills (https://www.edx.org/course/problem-solving-and-critical-thinking-skill)

	<p>4. Business and Data Analysis Skills (https://www.edx.org/course/business-and-data-analysis-skills)</p> <p>5. Supply Chain Management: A Decision-Making Framework (https://www.edx.org/course/supply-chain-management-a-decision-making-framework)</p> <p>6. Entrepreneurship in Emerging Economies (https://www.edx.org/course/entrepreneurship-in-emerging-economies)</p> <p>7. Business Communication (https://www.edx.org/course/business-communication-ritx-skills101x-0)</p> <p>8. Project Risk Assessment (https://www.edx.org/course/project-risk-assessment-michiganx-fin402x)</p> <p>9. Visual Presentation (https://www.edx.org/course/visual-presentation-ritx-skills106x-0)</p> <p>10. Writing for Social Media (https://www.edx.org/course/writing-social-media-uc-berkeleyx-buswri3x)</p>
Economics and Finance	<p>1. Data for Effective Policy Making (https://www.edx.org/course/data-for-effective-policy-making)</p> <p>2. Intellectual Property Law and Policy (https://www.edx.org/course/intellectual-property-law-policy-part-2-pennx-iplaw2x-0)</p> <p>3. Introduction to Project Management (https://www.edx.org/course/introduction-project-management-adelaides-project101x)</p> <p>4. Behavioural Economics in Action (https://www.edx.org/course/behavioural-economics-in-action)</p> <p>5. Global Sociology (https://www.edx.org/course/global-sociology-wellesleyx-soc101x)</p> <p>6. Foundations of Development Policy (https://www.edx.org/course/foundations-of-development-policy)</p> <p>7. Data Analysis for Social Scientists (https://www.edx.org/course/data-analysis-for-social-scientists)</p> <p>8. Evaluating Social Programs (https://www.edx.org/course/evaluating-social-programs-mitx-jpal101x-6)</p> <p>9. AGRIMONITOR: Agricultural Policy, Food Security and Climate Change (https://www.edx.org/course/agrimonitor-agricultural-policy-food-idbx-idb13-1x-0)</p>
Humanities	<p>1. Critical Development Perspectives (https://www.edx.org/course/critical-development-perspectives-uqx-lgdm4x-1)</p> <p>2. Working in Teams: A Practical Guide (https://www.edx.org/course/working-teams-practical-guide-uqx-teams101x-2)</p> <p>3. How Media Got Social (https://www.edx.org/course/how-media-got-social-curtinx-net1x)</p>
Biology and Life Sciences	<p>1. Introduction to Psychology (https://www.edx.org/course/introduction-psychology-st-margarets-episcopal-school-psych101x-0)</p> <p>2. Sustainable Food Security: The Value of Systems Thinking (https://www.edx.org/course/sustainable-food-security-the-value-of-systems-thinking)</p>

Note: There is an exclusive course on the EdX platform, DemoX, which is intended to show new students how to take a course on edx.org.

SPECIALISED MOOC PLATFORMS

There are even specialized MOOC platforms for dedicated topics. For instance, a platform called Data Camp⁴ offers specialized online courses on data science. The courses are designed to learn data management and analytical skills online, which are much demanded by the present day labor market. The courses are categorized into various domains, such as programming, data manipulation, machine learning, data visualization, probability and statistics, etc. A total of 111 courses are offered on this platform and some of the popular courses are: Introduction to R, Deep Learning in Python, and Introduction to Data Visualization with Python, etc.

MOOC PLATFORMS IN INDIA

There are many MOOC platforms in India which provide customized courses to a diverse audience. Unacademy⁵ is India's largest learning platform, which offers 2,400 online courses. The platform is unique in its approach as it provides custom-made courses for preparing for various competitive examinations, such as UPSC Civil Service, GATE, CBSE UGC NET, Common Admission Test (CAT), as well as Bank PO. Another platform, Khan Academy⁶ from the Agha Khan Foundation, deals with many interesting courses on Mathematics, Science and Engineering, Arts and Humanities, etc., dealt at the basic level. Some of the IITs in India also have launched their own MOOC platforms recently (for example, agMOOCs⁷ from IIT Kanpur), to benefit agricultural professionals. Further on, National Programming on Technology Enhanced Learning (NPTEL)⁸ is a collaborative effort of the seven Indian Institutes of Technology (Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and Indian Institute of Science Bangalore (IISc) for creating video and web course contents in various fields. The platform delivers a variety of courses covering a range of topics from social sciences, including many advanced courses (one example is Artificial Intelligence: Knowledge Representation and Reasoning). The courses are free for all and participants can earn a certificate by paying a nominal charge.

Unanth,⁹ a popular Indian online platform describes itself as an online learning marketplace, providing students with a unique learning experience while offering instructors an opportunity to expand their market reach. In addition to giving access to a number of MOOCs, the platform also provides unique opportunities to its members, for example a chance to provide mentorship to others and to design and launch online courses in order to monetize their expertise. Also it is worth mentioning here that in 2017 the Government of India had launched its own MOOC platform called *Swayam*,¹⁰ to provide 'best teaching learning resources to all' online. The courses range from high school to post graduate level. Any academic institution in India can offer up to 20 percent of its catalog in a particular program via *Swayam*. Hence, there

⁴<https://www.datacamp.com/>

⁵<https://unacademy.com/>

⁶<https://www.khanacademy.org/>

⁷<https://www.agmoocs.in/>

⁸<https://onlinecourses.nptel.ac.in/>

⁹<https://www.unanth.com/>

¹⁰<https://swayam.gov.in/>

is ample scope for integrating selected MOOCs with the course syllabus so as to supplement and enhance knowledge and skills of the learners.

MOOCs: STILL AN UNDERUTILIZED RESOURCE IN AGRICULTURAL EDUCATION?

Though MOOCs offer a variety of courses useful to the scholars of a variety of disciplines, it is still debatable whether they have been utilized to the fullest possible extent. If we look at the present curricula in agricultural universities, we can safely conclude that the potential of MOOCs have still not been realized. Usually the curricula for the different courses would give a set of suggested readings, helpful for understanding the topic in depth. At this juncture, it would add to the experience if MOOCs were also listed as these would supplement the reading and impart associated skills to the respective course.

For instance, the online course, ‘Digital Story Telling’ offered by Michigan State University (in the Coursera platform) can be made a suggested MOOC for the students of e-extension. This course teaches how to make attractive teaching videos – starting with story board writing – and facilitate the learning by showing demonstration videos. The course also covers various open source platforms of music files and high quality images for use in making the videos and publishing guidelines. The learning will also be assessed by a compulsory practical, in which the learners are required to make and publish a small video for evaluation. Hence, by the end of the course, a scholar of e-extension would get a clear idea on how to make a teaching video and would be equipped to make one by himself/herself. Similarly, the MOOC, ‘Survey, Data Collection and Analytics’ (<https://www.coursera.org/specializations/data-collection>) offered by Michigan State University through Coursera is a course that many agricultural social science scholars may be looking for, before commencing their research study.

Recently a MOOC run by NPTEL on ‘Mobile Applications’ generated huge interest among the audience as evident from the waiting list of candidates for registration in the programme. Figure 1 shows the upward trend over the years on Google search with respect to MOOC-related terms, worldwide. If this trend is any indication, the interest in MOOCs is peaking across the globe.

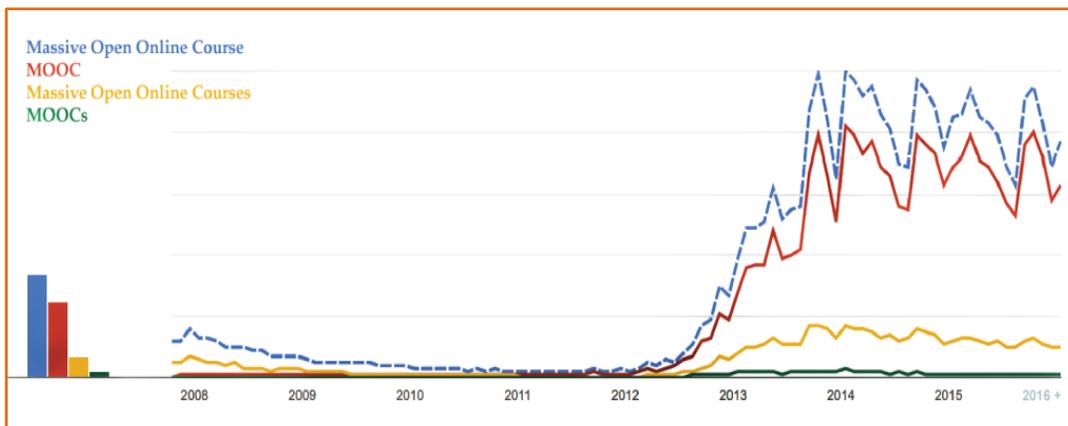


Figure 1: Google Trends for MOOC-related keywords

Source: Bozkurt et al. (2016)

MOOCs were basically introduced to cater to the educational needs of the masses, who are otherwise disadvantaged. However, a survey of active MOOC users in more than 200 countries revealed that most people signing up to do free online courses were already highly educated and 80 percent of them already held a degree. This strengthens the argument that MOOCs seem to be reinforcing the advantages of the 'haves' rather than educating the 'have-nots' (Emanuel 2013). According to this survey, India is one among those countries where, almost 80 percent of MOOC students come from the wealthiest and most well-educated six percent of the population. In other words, MOOCs have fallen short of democratizing education, and instead, have widened the gaps in access to education instead of shrinking them, at least for the time being (Hollands and Tirthali 2014). Access to internet, recent trends in commercializing MOOCs by putting a price on accessing course content, etc., are some of the other issues, which question the very rationale of MOOCs itself.

CONCLUSIONS

MOOCs are not an isolated development, but rather form part of a wider landscape of changes in higher education to supplement classroom teaching, which should possibly be aimed at specific targets, namely, university students with a chance to validate credits, professional development courses for teachers, or as a channel for corporate training (Yuan and Powell 2013; Hollands and Tirthali 2014). Unfortunately, the present curricula has not accorded due emphasis to MOOC-based learning or utilizing them as supplementary learning materials. Giving incentives (credit requirements, weightage in the score cards, etc.) would motivate young scholars to enroll into more MOOC programmes and acquire new skills. The concerned departments in each university can prepare a database of various MOOCs relevant to their courses, and make them a part of the curricula. However, course pricing may be a deterrent factor for many of the learners, especially young scholars. In order to overcome the cost factor, ICAR organizations can start their own MOOCs with assured quality to rival the global MOOC platforms. Thereby, common courses can be developed across these institutions, which can be shared, and these MOOC materials can be used multiple times. However, the courses should be designed based on the demand from the user community, and quality of the content should be certified for better learning outcomes.

Already, organizations like MANAGE and NAARM, have launched their own MOOC platforms. Furthermore, radical changes witnessed in the telecom sector, such as access to internet data at nominal prices and its universal coverage in the country, is expected to give a big boost to the progress of MOOCs. The advances related to improvements in technological solutions, such as machine learning, natural language processing, human-computer interaction, adapting machines in line with the student's progress, or the development of new tools such as video annotations, which allow for greater multimedia interaction and collaboration between students, are surely expected to revolutionize MOOC-based learning in the coming days (Vargas 2014; Monedero, Cebrián and Desenne 2015).

References

- Bayne, S and Ross, J. (2014.) The pedagogy of the Massive Open Online Course: the UK view Accessed from https://www.heacademy.ac.uk/sites/default/files/hea_edinburgh_mooc_web_240314_1.pdf
- Bozkurt A, Keskin NO and Waard I. (2016). Research Trends in Massive Open Online Course (MOOC). Theses and Dissertations: Surfing the Tsunami Wave. *Open Praxis*. 8(3): 203-221
- Daniels, J (2014) Making Sense of MOOCs: Musings in a Maze of Myth, Paradox and Possibility. Accessed from <http://jime.open.ac.uk/articles/10.5334/2012-18/>
- Delgado KC, Muñoz-Merino, PJ, Alario-Hoyos, C, Estevez Ayres, I, and Fernández Panadero, C. (2015). Mixing and blending MOOC Technologies with face-to-face pedagogies. In *Global Engineering Education Conference (EDUCON), 2015 IEEE*. Accessed from <http://ieeexplore.ieee.org/xpls/icp.jsp?arnumber=7096090&tag=1>
- edX. 2012. About edX. Accessed from <https://www.edx.org/about-us>
- Emanuel, EJ. (2013.) Online education: MOOCs taken by educated few. *Nature*. Accessed from <https://www.nature.com/articles/503342a>
- Higher Education Academy. (2017). Massive open online course (MOOC). Accessed from <https://www.heacademy.ac.uk/knowledge-hub/massive-open-online-course-mooc>
- Hollands, FM and Tirthali, D. (2014.) *MOOCs: expectations and reality. Full Report*. New York: Teachers College, Columbia University. Accessed from <https://oerknowledgecloud>.
- Israel, MJ. (2015.) Effectiveness of integrating MOOCs in traditional classrooms for undergraduate students. *The International Review of Research in Open and Distance Learning*, 16, 5: 102-118. Accessed from <http://www.irrodl.org/index.php/irrodl/article/view/2222/3437>
- Mallya, H. (2017). Can MOOC platforms galvanise universal education in India? Blog. Your story. Accessed from <https://yourstory.com/2017/04/coursera-nikhil-sinha/>
- Monedero, J. J., Cebrián, D. and Desenne, P. (2015). “Usability and Satisfaction in Multimedia Annotation Tools for MOOCs” . *Comunicar. Revista Científica de Educación y Comunicación*, 44: 55-62, Accessed from <http://www.revistacomunicar.com/verpdf.php?numero=44&articulo=44-2015-06&idioma=em>
- Newyork Times. (2012). The Year of the MOOC. Accessed from <https://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html>
- Olazabalaga IM, Garrido CC and Ruiz UG. (2016). Research on MOOCs: Trends and Methodologies. *Monográfico*. 15(7): 87-98.

Rodriguez, C. (2012) MOOCs and the AI-Stanford like courses: Two successful and distinct course formats for massive open online courses. *European Journal of Open, Distance and E-Learning*, 15(2).

Vargas, J. (2014). “What Can Online Course Designers Learn from Research on Machine-Delivered Instruction?” *Academe*, 100 (3): 8-12, Accessed from <http://www.aaup.org/article/what-can-online-course-designers-learn-research-machine-deliveredinstruction#>

Yuan, L and Powell, S. (2013.) MOOC and open education: Implications for higher education. CETIS: Centre for Educational Technology, Interoperability and Standards, White Paper, WP03. Accessed from: <http://publications.cetis.org.uk/2013/667>

Zawacki-Richter, O., & Naidu, S. (2016). Mapping research trends from 35 years of publications in *Distance Education*. *Distance Education*, 37(3). Accessed from <http://dx.doi.org/10.1080/01587919.2016.1185079>

Dr. Sreeram Vishnu (srieeram@gmail.com) is Research Officer with the Center for Research on Innovation and Science Policy (CRISP), Hyderabad

**AESA Secretariat: Centre for Research on Innovation and Science Policy (CRISP),
Road No 10, Banjara Hills, Hyderabad 500034, India
www.aesa-gfras.net Email: aesanetwork@gmail.com**