

Critical discussions on the Massive Open Online Course (MOOC) in India and China

Sangeeta Trehan
Ansal University, India

Janesh Sanzgiri and Chenxi Li
Open University (OU), UK

Rongsheng Wang
Tsinghua University, China

Rakesh Mohan Joshi
Indian Institute of Foreign Trade, India

ABSTRACT

Massive Open Online Courses (MOOCs) have been a relatively recent entrant in the field of online learning, yet with their “massiveness” and “openness” were posited to have the potential to transform learning and development in developing countries by providing willing learners with ready access to knowledge and Higher Education (HE). Early research has shown that MOOCs have mostly been deepening, rather than broadening, access to education. Yet they have strengthened in numbers since their inception. The current article situates the discourse around MOOCs from the unique perspectives of India and China with three broad objectives of sharing MOOC development in these countries, conducting a high-level discussion of the potential value of MOOCs for their HE systems and critiquing current issues with MOOC development there. This discussion is timely, since MOOC discourse in the international literature has swung between trumpeting MOOCs as “disruptive” technologies to warning of the “MOOC delusion”. We find that the concept and practice of MOOC in India and China are emerging. From the supply side, there is a need to focus on sound design, quality and accessible delivery, multi-lingual facilitation and efficient regulation of MOOC-credits, besides development of critical literacies for MOOCs in learners to realize the potential and promise of the MOOC.

Keywords: *online learning; eLearning; MOOC; MOOC platforms; developing countries; Massive Open Online Course; Delphi; education; development; ICT; information and communication technology.*

INTRODUCTION

The two Asian giants of India and China, accounting for nearly 40 percent of the world’s population, have a unique set of challenges facing them as they each chart their own course towards development in the twenty-first century. A key facet of social development in any context is attitude towards education and how adequately and swiftly the design and delivery of education evolves over time to meet the needs of development. While India and China might be at different stages of economic development, one common concern is the need to scale education to keep up with an overwhelming demand of their respective populations. The challenge of information and knowledge delivery in developing countries and the potential of eLearning as a viable approach have been acknowledged since long (Abdon, Raab, & Ninomiya 2008). The Massive

Open Online Course (MOOC), in particular, is a recent innovation in open online learning that was (at least initially) promoted by the providers as a significant development for extending education in developing countries (Koller 2012). Evolution of the MOOC in higher education is an important topic to be explored as having diverse, accessible forms of quality education is vital for both China and India.

Why a joint study of the MOOC in China and India? Besides the common need to scale up education to meet the growing demand for it, as noted above, there is another similarity between China and India in terms of their governments' active initiatives which makes a joint study of MOOC in India and China significant. Governments in India and China have provided active policy support with respect to MOOCs and undertaken new initiatives, either to expand people's accessibility to HE in general or to reform their existing systems of HE and lifelong learning. In April 2015, China Ministry of Education (MOE) announced MOE decree 2015 #3 (MOE 2015 b), which includes a number of policies to promote MOOCs in China¹. The Ministry of Human Resource Development (MHRD) in India brought out guidelines for development and implementation of MOOCs in March 2016 (MHRD 2016). Indeed, as noted by Kim et al. (2015), this is a fundamental difference regarding MOOCs between most Asian Countries (like India and China) and the Western countries – namely, the governments' active initiatives in the former.

The move towards online learning opportunities is evident amongst both developed and developing countries in recent times (Mirriahi, Alonzo, McIntyre, Kligyte & Fox 2015). Specifically, MOOC, which is the latest artefact in online learning, has caught on fast in China and India. The three main US-based MOOCs - edX, Coursera and Udacity - in their very first year, 2012, each had a large number of Indian enrolments, representing between 10-15% of total enrolments (Bhattacharyya 2013). In 2016, the number of India's MOOC learners ranked at 3rd place in the world, after the U.S. and Brazil and China's at 4th place after India (Shi & Yu 2016). Yet India and China present interesting contrast in their speed and depth of response to the MOOC phenomenon. While India mainly remains a consumer of the branded MOOC, China where too MOOCs have gained vast popularity since 2013 (Lingfeng 2016) has also substantially jumped on the MOOC bandwagon itself – China has not only partnered with some global MOOC platforms like Coursera, edX and FutureLearn, but also has developed platforms of its own. XuetangX, the major MOOCs and blended learning portal from China, crossed 2.7 million students in May, 2016 (Lingfeng 2016). By the end of 2016, it offered nearly 400 courses and had over 6 million registrants worldwide and was the 3rd largest MOOCs provider in the world behind Coursera and edX by registration count (Shah 2016).

MOOC: EVOLUTION, CLASSIFICATION AND DEFINITION

The MOOC has been continuously evolving since 2008 so there are a number of variants and definitions. Primarily, there are two broad strands of MOOCs, namely, cMOOCs (based on the principles of the learning theory of Connectivism (Siemens 2004) and the notion of Connective Knowledge (Downes 2007)) and x-MOOCs (based on cognitivist and behaviourist approach (Conole 2015; Kop 2011)). Past MOOC literature reviews (Veletsianos & Shepherdson 2016; Ebben & Murphy 2014; Hew & Cheung 2014 and Jacoby 2014, to name a few) have identified the dichotomy between cMOOCs and xMOOCs as a salient theme in the MOOC literature. Here are two definitions of the MOOC in the c-MOOC and x-MOOC tradition respectively.

¹ The MOE policy suggests universities to be main bodies for MOOC development and construction, and also to advise the private sector in joint development. MOE indicated that they will strengthen the standardization and regulation of MOOCs in China.

“A MOOC is an online course with the option of free and open registration, a publicly shared curriculum, and open-ended outcomes. MOOCs integrate social networking, accessible online resources, and are facilitated by leading practitioners in the field of study.” (McAuley, Stewart, Siemens & Cormier 2010, p.10)

“A massive open online course (MOOC) is an online course aimed at unlimited participation and open access via the web.” (Kaplan & Haenlein 2016)

However, writing in the UK context Bayne & Ross (2014) dismiss the utility of “broad-brush descriptions of MOOC pedagogy in terms of a cMOOC/xMOOC binary (that) are no longer representative or particularly useful” (p.8) They insist that “MOOCs are multiple...(having) multiple pedagogic forms and intentions” and further that “a more nuanced approach to institutional thinking around MOOCs is now needed: one which takes account of an analysis of MOOC pedagogy at a micro level of individual course design” (Bayne & Ross 2014, p.8). Other frameworks for analyzing and classifying MOOCs have been proposed. Clarke (2013) proposed eight types of MOOCs based on pedagogical approach and learning functionality, Downes (2010) suggested four criteria: autonomy, diversity, openness, and interactivity while Conole (2014) proposed twelve dimensions of a MOOC, namely, degree of openness, amount of use of multimedia, amount of communication, extent to which reflection is encouraged, collaboration included, scale of participation (massification), diversity, autonomy, how informal or formal it is, level of assessment, level of quality assurance and type of learner pathway. However, an in-depth discussion of MOOC definitions and classifications is beyond the scope of the current article.

Historically, MOOC developed as an offshoot of the OpenCourseWare (OCW) movement as need of new tools in OCW was felt to make it more dynamic, interactive, social and amenable to assessment (Martinez 2014). However, the definition of ‘Open’ in MOOC has been debatable and the lack of clarity regarding ‘Open’ in MOOC is deplored (Martinez 2014) - in OCW, ‘Open’ refers to free, accessible and reusable whereas in MOOCs, ‘Open’ means free (at least the content) and accessible (during the course timetable), but reusability is not assured. Indeed, with the monetization efforts of MOOC companies such as Coursera, edX and Udacity and business models around MOOC evolving through 2015-2016 (Shah 2016), ‘open’-ness of the branded MOOC has further shrunk.

The current authors have considerable experience with Open Educational Resources (OERs) and MOOCs themselves and have been keenly following developments in the MOOC sphere in India and China. Since the agenda of the current research is quite specialized in terms of assessing the uptake of the MOOC in China and India - contexts where, in our considered opinion, a very nuanced approach to MOOC definition and categorization on the basis of shades of ‘openness’ and ‘massiveness’ may not be necessary - we would steer clear of the grey areas and debates regarding ‘open’ aspect of the MOOC here and for the purposes of this paper work with the following general definition of a MOOC: “MOOC is an online learning ecosystem featuring open enrollment and characterized by structured learning pathways with or without credit administered through a digital platform.”

The remainder of this paper is organized as follows: First, three broad themes from a literature analysis at international level are presented in order to put the discussion of the MOOC in China and India in perspective. After delineating the research objective and methodology, the next two sections, namely, current status and potential value of the MOOC for the Chinese and Indian higher education systems, provide a contextual background of MOOC development in the respective countries. These two sections are based on a review of the available India and China centric MOOC literature. The next section investigates our research question of identifying the specific issues and concerns with development of MOOCs in India and China. Delphi is used to

elicit expert opinions and as a standard for discussion for this part. Limitations of our Delphi study are noted and finally, conclusions are drawn inferring from the results of the documental analysis and Delphi group.

LITERATURE REVIEW

In this section the authors attempt to introduce three broad themes emerging from an analysis of the international MOOC literature. Exploration of the regional situations of China and India such as the one undertaken in this research could contribute to enrich the current understanding of MOOCs and throw new light on these themes.

Skewed geographical distribution of MOOCs research

Liyanagunawardena, Adams & Williams (2013) deplored the majority of the MOOC research arising from Western authors. Such research, they indicated, may fail to address MOOCs and MOOC learners in developing countries under different conditions. By 2016 one still notes this geographical *skewness* - most of the MOOCs research and literature has emanated from North America and Europe. For instance, out of the 183 empirical peer-reviewed papers focusing on MOOCs, published between Jan 2013-2015 that constituted the corpus of Veletsianos and Shepherdson (2016)'s study, over 82% had author affiliations of North America and Europe; Asia accounted for only 8% of the author affiliations with China alone accounting for 5.4% and India less than 1%. Similar is the finding of Gasevic, Kovanovic, Joksimovic & Siemens (2014) as they examined the distribution of grant applications submitted to the MOOC Research Initiative. Thus peer-reviewed MOOCs research is far from being a global phenomenon. In view of this skewed geographical distribution of MOOCs research, the development of current understanding of MOOCs might be limited in scope.

A nascent research field with emergent methodological approaches

Early scholarly research into the MOOC phenomenon was predominantly qualitative: case-study and narrative research seemed to predominate (Jacoby 2014). But since 2014, there have been a number of quantitative studies beginning with institutional reports analyzing data from the learners' activity logs like Ho, Reich, Nesterko, Seaton, Mullaney, Waldo & Chuang 2014. Raffaghelli, Cucchiara & Persico (2015) analyzed 60 relevant papers published during the period January 2008–May 2014 in order to explore the methodological approaches most commonly adopted in the scholarly literature on MOOCs. The emerging picture, they say, is that of “a research field in its infancy, heavily relying on theoretical research and case studies, which is just beginning to identify suitable methods to deal with large cohorts of learners, very large amounts of data and new ways of learning”. Also, “different epistemological and ontological conceptions of the authors of the papers about the nature of the issues faced and the way they should be studied” (Raffaghelli et al. 2015, p.1) make for varied and fragmented methodological approaches. Besides, those not part of the MOOC-offering institutions researching MOOCs face a common challenge of difficulty in obtaining data which further constrains the set of feasible methodological approaches.

MOOC as an emerging concept with unsure prognosis

MOOC discourse in the literature has swung between trumpeting the MOOCs as ‘disruptive’ technologies (Flynn 2013; Jacoby 2014; Conole 2015) to warning of the ‘MOOC delusion’ (Sharma 2013; Bady 2013). Past thematic reviews and scholarly syntheses of MOOC literature (Haggard, Brown, Mills, Tait, Warburton, Lawton & Angulo 2013; Bayne & Ross 2014; Ebben & Murphy 2014; Yousef, Chatti, Schroeder, Wosnitza & Jakobs 2014; and Veletsianos &

Shepherdson 2016) report works making varied prognoses of MOOCs. Rolin Moe in his article 'The Phenomenal MOOC' aptly notes how

"both the abundance and vacillation of MOOC prognoses signify that the MOOC is an emerging concept that researchers and practitioners alike are struggling to make sense of. Little attention has been paid to the MOOC as an emerging practice or as a reflection of how society conceptualizes and practices education." (Moe 2016, p.163)

Moe further aptly summarizes the state of MOOC discourse as follows:

"While the MOOC can be both heralded and castigated in research-based education discussions, the popular discussion about MOOCs continues to grow and adapt without strong input from critical education voices." (Moe 2016, p. 165).

RESEARCH QUESTIONS AND METHODOLOGY

The present authors visualized an exploratory research aimed at answering the following three research questions (RQs):

RQ1: What has been the development of MOOCs in China and India?

RQ2: What has been/ could be the value and potential of MOOCs in developing countries like India and China?

RQ3: What are the most important issues with MOOC design and implementations in India and China?

Critical Discussions is the outcome of an extensive exploratory research spanning fourteen months since early 2016. A common challenge for those researching MOOCs in the developing world is difficulty in obtaining data which the authors of this article also experienced. Nonetheless, in order to seek answers to the research questions multiple approaches consisting of literature study, observation, experience survey and a small-scale Delphi study were planned. In order to gain first-hand knowledge of MOOC platforms, the authors also enrolled and participated in some 'branded' MOOC courses (on Coursera, edX and Udacity) and some locally developed MOOC courses (on XuetangX and NPTEL) themselves.

An extensive review of India and China-centric MOOC literature as well as experience surveys formed the basis for answering the first two research questions RQ1 and 2 in the subsequent two sections. A large amount of secondary information regarding all aspects of MOOC development in India and China from the available journal articles, theses, case studies, situation analyses, vision papers, brainstorming sessions or conference presentations, authentic media reports, blog posts by internationally recognized MOOC experts as well as information from MOOC-providers was utilized for an extensive background study. In RQ2 we were faced with the difficult task of assessing the value of the MOOC in our countries. Critics of the MOOC have cited low MOOC participation and completion rates as evidence that they are not fulfilling their potential to improve access to disadvantaged students (Jacoby 2014, p.79). Bayne and Ross (2014) argue to "engage not with macro-level debate largely characterised by MOOC hype and MOOC backlash, but rather with the current micro-practices of MOOC teachers, and what these might mean for the role and place of online teaching in the open and at scale" (Bayne and Ross 2014, p.9). However, in view of non-availability of micro-level data regarding practices of MOOC teachers and learners from India/ China, especially disadvantaged learners, we couldn't evaluate the MOOC impact so far using this yardstick. Instead we were constrained to limit ourselves to a high-level discussion about MOOCs and their potential value based on discussions with local MOOC experts in India and China and review of the available literature in the section titled 'Potential Value'.

As the MOOC is an emerging practice and technology in both India and China of which not much is widely known and understood, Delphi (Linstone & Turoff, 2002) was considered appropriate methodology to address RQ3. A MOOC “expert” was defined as “any knowledgeable person with ‘significant’ expertise and stake in online education and MOOCs in India and/or China – especially professors/ resource persons involved in creating content for a MOOC and/or delivering a MOOC; online distance education/OER/MOOC scholars/ authors; MOOC developers/ producers/ administrators; private ed-tech entrepreneurs with substantial interest in MOOCs and political/government voices involved in production, offering and accreditation of MOOCs in India or China”. Using this definition, we contacted a set of MOOC experts with our study proposal and invitation to participate. Upon receiving affirmative responses from some of them, we constituted our study panel. Delphi was used to elicit opinions of the study participants and as a standard for discussion for RQ 3. Three rounds of the Delphi were conducted in all. Further details of the method and discussion of results are provided in the subsequent section titled ‘A Delphi Study’.

CURRENT STATUS OF MOOCS IN CHINA AND INDIA

This section documents MOOC development in China and India at the time of writing this article. A few reports and situation analyses about the MOOC phenomenon in China and India have come out since 2013. While a comprehensive vision paper on MOOCs for Indian Higher Education (Jain, Gopalakrishnan, Mehra, Kannegal, Upadhyay, Pankaj & Baxi 2014) came out in July 2014, a situation analysis of MOOCs in China by the Embassy of Switzerland in China (2014) is noteworthy as well. Narrative articles like Chen (2013) noted the opportunities and challenges presented by MOOCs with reference to East Asian countries of China, Taiwan, Singapore, Japan and South Korea while Chai & Yang (2014) analyzed differences between ‘foreign’ and Chinese studies on MOOCs and provided recommendations for future Chinese research on MOOCs. In the Indian context, Kaveri et al. (2015) empirically investigated user adoption of MOOCs drawing insights on demographics of MOOC users as well as some salient aspects of their personality, learning styles and life goals. Venkataraman & Kanwar (2015) present results from a study of a MOOC on Mobiles for Development (M4D), built and offered by Commonwealth of Learning (COL) and Indian Institute of Technology- Kanpur (IITK) in the last quarter of 2013 while members of openHPI.cn teaching team Che, Luo, Wang & Meinel (2016) report their experience of facilitating in Chinese language the MOOC course ‘Internetworking with TCP/IP’ which had previously been offered in German and English languages. Kim et al. (2015) attempt to present a picture of the emerging MOOCs movement among the member countries of Asia-Europe Meeting (ASEM) including China and India (in chapters 2 and 3 of the book).

MOOC Development in China

China, as a developing country with around 36 million students in the HE system (MOE 2015 a), has made significant contribution to MOOC development since 2013 as evidenced, for instance, by the growth of its major MOOC platform XuetangX. Class Central (2016) report stated that XuetangX, having crossed six million learners in 2016 with 300+ courses and around 30 university partners is the third biggest MOOC provider behind Coursera and edX.

Chinese scholars regard 2013 as ‘the year of the Chinese MOOC’ (Chai & Yang 2014). Table 1 summarizes the major milestones in the development of the major MOOC platforms in China, including XuetangX, China Universities MOOC, CNMOOC and Chinese MOOC.

XuetangX platform, developed by Tsinghua University, was based on open-edX codes with localized modifications. It is the biggest Chinese higher-education MOOC platform, with the largest number of active online learners, collaboration with 80 universities and institutions and having shared its educational resources with more than 100 HE institutions through its Cloud

service. As one of the earliest and most experienced MOOC developing HE institution in China, Tsinghua University plays an important role in organizing academic seminars for MOOC researchers and offering MOOC trainings for HE institutions nationwide (Xiao 2015).

Table 1: MOOC Development in China

Serial No.	Platform	Key Events
1	XuetangX www.xuetangx.com	May 2013: Tsinghua University joined edX as one of its first batch of Asia University members. Oct 2013: Tsinghua University officially announced XuetangX MOOC platform. March 2015: Accumulated enrollments in almost 400 courses reached one million. (Xiao 2015)
2	CNMOOC www.cnmooc.org	Apr 2014: CNMOOC was released by Shanghai Jiaotong University Jul 2014: Host cross-university flipped class on Harbin Institute of Technology Nov 2014: Collaboration with FutureLearn to publish MOOCs developed by Shanghai Jiaotong University (CNMOOC News 2015)
3	China University MOOC www.icourse163.org	2014: China University MOOC was released jointly by NetEase and Higher Education Press (Jiemodui 2014)
4	Chinese MOOC www.chinesemoo.c.org	Feb 2015: Released jointly by Peking University and Alibaba (Tengxun Education 2015)
5	(Chinese MOOCs on) edX and Coursera	Over 2013-2016, a large number of MOOC courses developed by Chinese Universities have been offered for global audience on edX and Coursera. Among them, Tsinghua and Peking Universities offered the maximum number of courses on edX and Peking on Coursera.

MOOCs have become one of the most popular forms of online education in China since 2012. There were 1.51 million registered users from 126 countries/regions and 2.98 million cumulative enrollments on XuetangX by 2015. Most popular courses on XuetangX had cumulative enrolments of over 150,000 each in 2015 (Xiao 2015). By end of 2016, XuetangX became the third largest MOOC provider in the world after Coursera and edX by registration count with over 6 million learners (Shah 2016).

MOOC Development in India

The first MOOC experiments in India took place in 2012 with a course offered by Dr. Gautam Schroff of Tata Consultancy Services (TCS) and an adjunct faculty at Indian Institute of

Technology (IIT), Delhi. Also Larks Learning (Downes 2012a) as well as Sunstone (Sunstone Business School 2012) independently came up with the first indigenous MOOCs in the private sector in 2012. IIT, Kanpur developed an indigenously built mookIT platform in 2014; IIT BombayX, a customization of the open-source edX platform, came up in 2014-15 and NPTEL content is being delivered through Google Coursebuilder since 2014. The *Swayam* platform was inaugurated in July 2017. Table 2 summarizes the major initiatives towards MOOC development in India.

Table 2: MOOC Development in India

Platform/ Provider	Key Events
NPTEL (http://nptel.ac.in)	<ul style="list-style-type: none"> • 2006: NPTEL began as educational content repository similar to MIT Open Course Ware. It is one of largest publishers of OERs in the world today. • 2014: NPTEL MOOCs powered by Google's open-source platform Course Builder were launched. The first batch of three MOOC-like online certification courses was offered. • 2015-16: 90 MOOC courses ran in the second year 2015 and 47 in the period Jan-May 2016. 100 MOOC courses have been announced by NPTEL with scheduled dates for start and finish (July 2016-December 2016)
mookIT (http://www.mookit.co/)	<ul style="list-style-type: none"> • A lightweight platform conceived, designed and developed at IIT Kanpur over the period 2012-14. • 2014: Two MOOCs were launched using this platform: a) Architecting Software for the Cloud² and b) MOOC on MOOCs. Around 2300 students and professionals participated in it. • 2015: A course on ICT Basics was launched which was attended by students and professionals from 47 countries. The University of the South Pacific, Fiji, successfully launched and conducted a MOOC 'Climate Change and Pacific Islands' using mookIT. • 2016: A set of five agricultural courses targeting the students and teachers of agricultural programs under the umbrella of agMOOCs were launched (mookIT 2016).
(Indian MOOCs on) edX and Coursera	<ul style="list-style-type: none"> • The first Indian MOOC on edX targeted at a global audience ran in July 2014, attracting over 35,000 learners. • After IIT Bombay some other institutions³ offered MOOCs on edX and Coursera in 2015.
IIT BombayX	<ul style="list-style-type: none"> • This MOOC platform incorporating multilingual support was started in 2014-15. It is being used for delivering blended MOOCs as well (IIT Bombay 2015).

² Professors Prabhakar and Sodhi from the IITs (at Kanpur and Ropar) collaboratively ran this India's first MOOC on a locally built and manageable MOOC platform at IIT Kanpur during 2014.

³ These include Birla Institute of Technology and Science, Pilani, the Indian Institute of Management at Bangalore, and the Indian School of Business.

Ministry of Human Resource Development (MHRD)- recommended MOOC-platform called SWAYAM ⁴	<ul style="list-style-type: none"> • Oct 2015: National Stakeholder Summit to brainstorm on purpose, design, development and delivery of MOOCs for University-level credits • March 2016: Guidelines to institutions for development and implementation of MOOCs released by the MHRD • June 2016: Microsoft was awarded a contract for development of SWAYAM (TNN 2016) • July 2017: The SWAYAM portal was finally launched on July 9, 2017
---	--

However, a stable and full-fledged MOOC platform with consistently 'massive' enrolments (beyond, say, 100,000 registrants in a course) is yet to be built and operated in India. Interestingly, though, several adaptations of existing online learning tools using elements of MOOCs and mobile learning have come up on the scene in recent times in the edtech sphere. These include initiatives like Classle, WizIQ, Simplilearn, Millionlights, Chalk Street and Vedantu to name a few.

While not at the 'massive' scale as some of the more popular international MOOCs, the first pilot course by the IITs on mooKIT was considered a relative success due to the significantly greater completion rates than the international MOOCs (Jordan 2014). On the other hand, 'blended MOOCs' have been offered through IIT BombayX where educators enrol in a MOOC and then use it in a blended format at their own institutions. It allows the highest level of quality content from the IIT to trickle down to the smaller institutions, replacing the need for highly trained faculty.

POTENTIAL VALUE OF MOOC AND MOOC DEVELOPMENT FOR CHINESE AND INDIAN HE SYSTEMS

India and China-centric MOOC literature is replete with references to MOOCs and their several variants available today holding promise for HE in our countries in view of the problems of scale, access and quality. Chen (2013) noted MOOC opportunities and challenges with reference to economics, culture, language, and instruction from the perspective of China and other East Asian countries. In the first vision paper on MOOCs in the Indian context, Jain et al. (2014) build a comprehensive vision of MOOCs for Indian HE and propose detailed pathways for propagation and adoption. In a recent article Shi and Yu (2016) dwell on how the emergence of MOOC has changed the conventional paradigm of learning and teaching in most Chinese universities and describe responses of China's higher education institutions confronted with opportunities and challenges that MOOCs have brought about.

In this section five dimensions of value of MOOC for Chinese and Indian HE systems have been introduced, namely, overcoming the constraints of physical infrastructure and teaching resources, movement towards 'open'-ness, promoting development and practice of online and blended pedagogy to improve quality and scale within the existing University system, better recognition of online learning and even online degrees and international marketing and outreach of Chinese and Indian HE institutions. These common dimensions for both country contexts were derived from document study and discussions with local MOOC experts in India and China besides dialogue among the authors.

1. Overcoming the constraints of physical infrastructure and teaching resources

⁴ The NMEICT project in India was the precursor to SWAYAM, the current MOOC project of the Govt.

There is a dire lack of brick-and-mortar colleges and 'good' teaching faculty in India to achieve the goal of the Government of India (GoI) to raise the gross enrolment ratio (GER) to over 30 percent by 2020 (Jain et al. 2014). In case of China too, the gap between demand for and supply of HE continues to be high (MOE 2015a). There are at least two ways in which MOOCs could help HE in the wake of constrained physical infrastructure and teaching resources – First, directly by providing an alternative method to deliver a course – either purely online (in the absence of colleges, class rooms with students and teaching resources) or as blended MOOCs. Secondly, in the long run, MOOC could help indirectly by shifting the focus away from (lack of good) faculty to developing, empowering and leveraging capable learners who take greater responsibility, initiative and interest in their own education as well as the education of their peers (Cross 2015). By starting out with a presumption of these different set of skills, MOOCs explicitly foster and value these skills (Downes 2012b). This aspect, although usually not highlighted, is critical for learner empowerment and democratization of higher education.

2. Facilitating movement towards 'Open'-ness

While OCW and MOOCs are quite similar, MOOCs have been accused by some OER enthusiasts as possibly being a threat to the OER movement (Martinez 2014). However, in the developing country context of India and China, this may not be a concern. Quite the contrary, it has been reported that with the advent of MOOC, more and more university teachers in China are considering use of Open Educational Resources (OERs) under a Creative Commons (CC) license⁵ to make their teaching and students' learning more effective and fun (Xiao, 2015). NPTEL programme in India has been actively encouraging regional institutions to adapt their materials for their respective courses, with all content being shared with a Creative Commons license. The overall finding of a recent pan-India Survey (Perryman & Seal 2016) also supports increasing use of OERs under a Creative Commons (CC) license. Policy changes too are towards more open-ness in sharing resources - OERs developed under the National Mission on Education through Information and Communication Technology (NMEICT⁴) are available under the more liberal Creative Commons by Share-Alike (CC-BY-SA)⁵ license with no restrictive tag of Non-Commercial (NC)⁵ anymore.

3. Promoting development and practice of online and blended pedagogy to improve quality and scale within the existing University system

Shi and Yu (2016) discuss how the conventional paradigm of learning and teaching in most Chinese universities has been changing since the advent of MOOC and Chinese universities have begun to develop their own MOOC to stay relevant and/ or to safeguard their academic

⁵ Wikipedia defines a Creative Commons (CC) license as “one of several public copyright licenses that enable the free distribution of an otherwise copyrighted work. A CC license is used when an author wants to give people the right to share, use, and build upon a work that they have created. ...There are several types of CC licenses. The licenses differ by several combinations that condition the terms of distribution...With the Attribution (BY) right, licensees may copy, distribute, display and perform the work and make derivative works and remixes based on it only if they give the author or licensor the credits (attribution) in the manner specified by these. With the Share-alike (SA) right, licensees may distribute derivative works only under a license identical ("not more restrictive") to the license that governs the original work.... Without share-alike, derivative works might be sublicensed with compatible but more restrictive license clauses, e.g. CC BY to CC BY-NC.) With Non-commercial (NC) right, licensees may copy, distribute, display, and perform the work and make derivative works and remixes based on it only for non-commercial purposes...In October 2014 the Open Knowledge Foundation approved the Creative Commons CC BY, CC BY-SA, and CC0 licenses as conformant with the 'Open Definition' for content and data.” (Wikipedia 2016, December 13).

impact. First attempts of adopting 'blended learning' method for formal degree courses in Chinese universities were made in year 2014 (Xiao 2015). Tsinghua University introduced their internal Small Private Online Course (SPOC) platform in 2015. Teachers in Tsinghua University and several other universities in China modify the MOOC material to fit their own teaching plan or use MOOCs as part of their flipped classroom (Xiao 2015). Thus MOOC is seemingly leading to development and practice of online and blended pedagogy in China.

Prof Phatak at IIT Bombay pioneered adaptation of 'blended MOOCs' in India (Phatak 2015), (Kumar 2015). The MOOC is used in 'blended format' along with the flipped classroom methodology to deliver a superior educational experience—the individualized, hands-on instruction and collaboration that no 'pure' MOOC can provide. 'Blended MOOC' methodology was adopted to train teachers of tier 2 and 3 engineering colleges in India under the aegis of the T10KT (Train 10,000 Teachers) project. IIT Bombay operated three courses on IITBombayX platform for the blended MOOC operations in the academic year 2015-16 (IIT Bombay 2015). Beyond this, there is a slow, yet steady movement towards improvement of quality and accountability of University teachers and devising of innovative methods for greater student engagement across Indian HE institutions in the developing private sector – as experienced by the first author of this article who has had first-hand experience of the change, being an educator herself in a variety of Indian HE institutions in the private sector over the past ten years. Such a slow, yet steady change, we feel, may be attributed indirectly to the unmanifested MOOC prospects as stated by Conole (2015) too,

“The key value of MOOCs for me is that they are challenging traditional educational institutions and having to make them think about what they are offering, how it is distinctive and what the unique learner experience will be at their institution.” (Conole 2015, p. 14)

4. Better recognition of online learning and even online degrees

Advent of MOOC has encouraged the government and the general public to have a better recognition of online learning and even online degrees. There is a trend towards growing acceptance of MOOCs in higher education. MOOC credits are becoming recognized by top universities across China, including China University of Geosciences, Harbin Institute of Technology and Zhongnan University of Economics and Law. This list will continue to expand in the near future (Xiao 2015). In May 2015, Tsinghua University and Fudan University agreed on the MOOC accreditation through XuetangX platform and announced the first postgraduate degree programme in China, in which they used MOOCs for blended learning. In India too institutions have started offering college credits to NPTEL-verified certificates. Release of the University Grants Commission (UGC) Credit Framework for Online Learning Courses through SWAYAM Regulation, 2016 under Section 26 of the UGC Act is noteworthy too. The All India Council of Technical Education (AICTE) recently aspired that 10 per cent of courses be taken up through MOOCs (Umarji 2016). As the MOOC model grows and matures in India and China over time, an optimist would believe that emergent technologies would in near future not just deliver free content but also wherever possible offer open online courses for University credits to plug the gaps and constraints found in the University-level teaching in both the systems.

5. Promoting international marketing and outreach of Chinese and Indian Universities and institutions

A situation analysis of MOOCs in China in 2014 brought out the utility of MOOC development for Chinese Universities. “Chinese Universities, through MOOCs get the chance to raise their international profiles and to show their own perspectives and methodologies on a global level.” (The Embassy of Switzerland in China 2014, p.4)

IITs, Indian School of Business and BITS, to name some Indian HE institutions featuring on some of the 'branded' MOOC platforms, are known internationally by dint of having offered MOOCs there. On the other hand, NPTEL has carved a niche for itself internationally due to its unique online offerings — evidence that the global reach of online offerings needn't only go from West to East. (Wildavsky 2011). With the global predominance of Western MOOCs there have been concerns regarding what has been referred to as 'McDonaldization of global higher education' through the propagation of Western MOOCs (Lane & Kinser 2012). To counter-balance this, MOOCs from China and India may help to share Chinese and Indian culture, knowledge and worldviews to students all over the world.

A DELPHI STUDY ON CURRENT ISSUES WITH MOOC DESIGN & IMPLEMENTATIONS IN INDIA AND CHINA

This section reports about our study of the current issues with MOOC development in India and China. It is organized in four subsections, namely, overview, method and results, discussion and study limitations.

Overview

MOOCs have been growing every year since 2012 globally (Shah 2016). But with growth new challenges have been coming to light with respect to technology, delivery and economy, besides pedagogy. Student motivation and low completion rates have been identified as the core MOOC issues in the literature (Ebben & Murphy 2014), (Hew & Cheung 2014). Besides these (what we may call) generic issues, the focus of discussion in the current study are the specific issues and challenges with MOOC development in India and China. Branded Western MOOCs are of limited value for development in India (Venkataraman & Kanwar 2015). In China which has greater experience of successful, large-scale MOOC delivery, MOOC discussion has involved skeptical voices bringing out several critical aspects of MOOCs too (The Embassy of Switzerland in China 2014, p. 5). So we decided to elicit 'expert' opinions on the MOOC developments in both the countries using a small-scale Delphi study. Discussion in the current section attempts to connect the prior information with results from this Delphi investigation.

The Method and Results

Using our definition of a MOOC "expert" (given in the Research Questions and Methodology section earlier) we identified a set of 20 MOOC experts (fifteen on India and five on China) and contacted them with our Delphi study proposal and invitation to participate. We received affirmative responses from ten of them (two MOOC professors and developers with over four years of relevant experience; four online education scholars, besides two ed-tech entrepreneurs with MOOC and OER background experience of over five years; a MOOC pioneer and blogger who was part of the first MOOC CCK08⁶ offered in 2008; and a government official from the Indian government directly dealing with HE and MOOCs) who constituted our study panel. A small-scale Delphi study was conducted to identify the most important MOOC issues in the Indian and Chinese contexts.

⁶ CCK08, short for Connectivism and Connective Knowledge 2008, was the first MOOC conducted by George Siemens, Stephen Downes and David Cormier in 2008. David Cormier coined the term MOOC.

In Round one of the Delphi, the participants were asked to identify issues with MOOC design and implementations in their respective country contexts. 21 issues suggested by panel members in Round one altogether were collated and categorized into ten composite themes using content analysis. In Round two each panel member received feedback in terms of the list of ten themed issues with supporting statements for their consideration and examination. They were asked to rate each issue in rank order from one to ten in terms of its importance for MOOCs in their respective countries (with 1 referring to 'most important' and 10 referring to 'least important'). They were also asked to provide reasoning and instances to substantiate their response and opinion wherever possible. The panelists' rankings as well as comments from Round two were summarized and shared with all of them confidentially at the beginning of Round three for further consideration and ranking. Since we used ordinal scales, Kendall's W coefficient of concordance (Kendall & Smith, 1939) was used for measurement of consensus. While concordance was 0.43 at the end of round two, by the end of Round three, a reasonable amount of consensus ($W = 0.68$) seemed to emerge with respect to the importance rankings of the issues so that the study was concluded. A composite ranking of issues was produced following calculation of a composite score for each issue (Smart, Blake, Staines & Doody 2010). Table 3 provides the composite rankings of issues so obtained.

Table 3: Final Rankings of Ten Most Important Themed Issues with MOOC Design and Implementations

#	Issue	Composite Ranking
1	Language & Communication	I
2	Internet Connectivity and MOOC outreach	II
3	Content and dissemination-based MOOC learning model	III
4	Accreditation- MOOCs for credit	IV
5	MOOC pedagogy and delivery	V
6	Information and social media literacies of the learner population	VI
7	Economic Operation of MOOCs	VII
8	Imparting practical and skill-based education and training through MOOCs	VIII
9	Fear of College Teachers' Replaceability by MOOCs.	IX
10	MOOCs as Neocolonialism	X

Discussion

The ten themed issues resulting from the Delphi study (see Table 3) are briefly introduced in this subsection. The narrative switches back and forth between the Indian and Chinese contexts as we juxtapose the related developments in the two countries.

Language and communication

Most of the MOOCs suffer from an inherent systemic bias—they are designed for and delivered to students with knowledge of English language – students who already have higher chances for good education (Hasan 2014). Language and communication barrier in MOOC emerged as the foremost issue in MOOC design and implementations in India as our Delphi panelists brought out the limited utility of the NPTEL and upcoming SWAYAM MOOCs due to this. All MOOC developers in India must pay heed to what Rajib Hasan, founder of Shikhhok.com said in the context of the language of the MOOC:

“The language barrier can't be broken by dubbing only ... the cultural context in teaching is very important. .. our students commented that the organically developed courses in Bengali are much more useful to them compared to dubbed lectures from well known MOOCs that were originally developed in English.” (Hasan, 2013, p.1).

Several attempts at MOOC localization for Chinese-speaking users have been successfully made. Besides Chinese platforms offering MOOCs to Chinese learners in native language, localized subplatforms like openHPI.cn (Che, Luo, Wang & Meinel 2016), a sub-platform of the German MOOC platform OpenHPI.de and their successful MOOC localization efforts are noteworthy too. On the other hand, there are online learning communities like Guokr MOOC Academy for domestic MOOC learners. Guokr MOOC Academy, established in July 2013, provides various services to Chinese MOOC learners like providing access to branded MOOCs from Courera, edX and Udacity and sharing course reviews and notes, organizing and operating translation groups for translating courses and many active study groups and obtaining and discussing the latest information about MOOCs from all over the world (iversity 2014).

Internet connectivity and MOOC outreach

Considering self-paced eLearning as a whole, at any given time, there are over 150 million people using eLearning in China which constitutes a mere 11% of the Chinese population as of Sept 2015 as per Ambient Insight's Country Report for China (2015). Besides, foreign MOOC platforms in China still face the challenge that foreign websites load slower and that Youtube, the tool most of the platforms use to make video courses available, is blocked in China (The Embassy of Switzerland in China 2014, p. 5).

The MOOC prerequisite of access to fast Internet connections also creates a source of an inherent systemic bias of the MOOC in favour of resourceful learners. According to a study by Penn's Graduate School of Education reported in the Situation Analysis of MOOCs in China (The Embassy of Switzerland in China 2014, p. 4), 80% of the MOOCs students in China came from the richest 6% of the population (Ezekiel 2013). Another 2013 survey conducted by Guokr (<http://www.guokr.com>) and supported by Coursera and Tsinghua Online Education Office showed that MOOC learners in China were mainly from more developed areas such as Beijing, Shanghai, Guangdong, Jiangsu and Zhejiang. 80% MOOC learners investigated were pursuing or already had undergraduate degree or more. This finding also matches Western demographics of MOOC learners – most reported studies have shown how MOOC learners were already educated and more resourceful in terms of having good connectivity and prior knowledge and skills (Gasevic et al. 2014; Ebben & Murphy 2014). Although there is no reported study dwelling on the rural-urban demographic aspect of MOOC usage across India, given the inherent prerequisites for taking a MOOC, it must likely be the case that MOOC users are predominantly urban and relatively more resourceful than MOOC non-users. Hence, claims of MOOCs' potential in a developing country like India must be treated cautiously.

Content and dissemination-based MOOC learning model

Waldrop deplored the popular MOOC discourse avoiding a link to existing research or historical precedents in education (Waldrop 2013). Moe (2016) discusses MOOC's learning model and its lack of connection to education theory and practice. MOOCs in India are mostly viewed as an extension as well as enhancement of open source online content. The NPTEL MOOCs were created by repurposing the course content of 860 NPTEL courses generated between 2009 and 2014. The same strategy is being adopted at the time of writing this article to create MOOCs on SWAYAM for 30 UG subjects under the Government's NMEICT project. One of our Delphi participant aptly remarked:

“Most of the MOOC initiatives are very content and dissemination based. Our field observation as well as the usage data led us to infer that it is not what the learner wants...To accommodate the way the learner sees we need to use technology to put in place multiple functionalities and features to enhance learning experience.”

In China too, as Prof. Li Fei of Wuhan University noted, there is a lack of organization, too much repetition and overlap in the development of online courses and more strategic planning is needed (The Embassy of Switzerland in China 2014, p. 5).

Accreditation: MOOCs for credit

Accreditation has been mentioned in the literature as a MOOC challenge (Liyangunawardena et al. 2013). The question of MOOC accreditation in the Indian and Chinese contexts is even more pertinent as for learners from developing countries, course participation, in real-time or online, is expected to lead to credit (Venkataraman & Kanwar 2015). In China, issues like student cheating in MOOCs and possibly fake MOOC certificates have emerged. Furthermore, it is still not clear to what extent a course certificate (paid by students) is recognized by employers or schools (The Embassy of Switzerland in China 2014, p. 5). There are slow but steady developments in India towards availability of MOOCs for credit. Regulatory provisions in this area are only now being put into place. UGC's recent set of regulations 2016 in this regard have already been noted. Yet much work needs to be done in both countries in terms of cross-institutional recognition and accreditation to enable MOOC courses to be freely offered by Chinese and Indian institutions.

Among other things, course equivalence bodies like the American Council of Education (ACE) (<http://www.acenet.edu/Pages/default.aspx>) that evaluates and offers credit equivalence programs and alternate pathways to degree attainment like Credit for Prior Learning and Credits to Credentials (ACE 2015) need to be established in China and India too to put requisite systems in place. The full power of MOOCs within the University system in these countries, it seems, can be harnessed only with due accreditation and transferability of credits.

MOOC pedagogy and delivery

The question of pedagogy has been acknowledged as “an aspect of the rise of the Massive Open Online Course (MOOC) which has had a tendency to be under-discussed in research, reportage and commentary to date” (Bayne & Ross 2014, p.9). After assessing the literature on MOOC pedagogy, they identify the following five key emerging themes: “the troubling of the cMOOC/xMOOC binary; the teacher role within MOOCs; tensions around MOOC learner participation; the meanings and implications of ‘massive’ and tracing the boundaries between openness and control” (p.7). The MOOC pedagogy, the authors emphasize, “is not embedded in MOOC platforms, but is negotiated and emergent... (and is) a socio-material and discipline-informed issue” (Bayne & Ross 2014, p.8). Ebben & Murphy (2014) discuss the challenge of assessment of complex writing such as essays in MOOCs while limitations of mass teaching methods in MOOCs are discussed by Kennedy (2014).

Both in India and China, universities and other MOOC-content creators pay most of the attention to the recording process of the teaching videos; online learning pedagogy and MOOC instructor training have received very little attention. Out of the 85 projects approved by NMEICT in India in 2008 for a period of five years (2009-2014), there was only one project for development of a programme for Bloom's taxonomy-based MOOC content development in engineering courses for outcome-based online learning. This project was spearheaded by Prof Anup Ray, the IIT Kharagpur coordinator of NPTEL in Phase I and his team. Furthermore, a comprehensive well-developed system for MOOCs' operation and delivery to ensure the quality of MOOCs delivered

by different universities or institutions in these countries is yet to be put in place. Usually, it's only individual teachers and volunteers who are completely in charge of the MOOC course operation. Indeed, the whole idea of the MOOC as an event (not as just an online class) as emphasized by Venkataraman & Kanwar (2015) needs to gain ground.

Information and social media literacies of the learner population

Research has shown that some information and social media literacies, capabilities and behaviours on the part of learners are needed for 'best outcomes' with MOOCs (Miller 2010). These include capabilities and behaviours such as information processing, working with online tools, managing one's digital identity, relationship building, self-expression, participation, self-direction, way finding and taking responsibility of one's own learning. In China, lack of digital literacy of staff and students as well as the occurrence of technical problems had been criticized (The Embassy of Switzerland in China 2014, p. 5). Huang, Li, & Zhou (2016) report on information literacy instruction in Chinese universities - MOOCs versus the traditional approach. Su, Huang, & Ding (2016) examine the effects of MOOCs learners' social searching results on learning behaviours and outcomes. In their investigation of user adoption of MOOCs in India, Kaveri et al. (2015) examined impact of several variables including Internet skills, key personality traits and learning styles of their survey respondents on the choice to enrol in at least one MOOC course. The results showed those with better internet skills and an existing preference for learning through videos were seen to be significantly more likely to adopt MOOCs.

Economic operation of MOOCs

Several economic issues with MOOCs like high cost of running a MOOC or lack of a business model have been identified in past literature reviews (Jacoby 2014; Hew & Cheung 2014). Monetization attempts have been made by branded MOOCs for their sustainability - Coursera and edX started charging for assessment and Udacity for its nanodegrees in 2015. Two of the five global emerging trends in the MOOC space identified by Class Central (2015) report referred to the death of the free certificate and sharper business model (with paid credentials). Summing up this trend towards monetization at the cost of massiveness among MOOC companies Shah (2016) writes in his year-end review of MOOC statistics and trends in 2016,

"Unlike previous years, no major venture funding rounds went to MOOC companies in 2016. That means for many providers, monetization became a priority. Some of the features that were previously available for free—certificates, graded assignments and content—are no longer so. All the major providers already have or plan to launch courses that are paid only." (Shah, 2016)

In China too since 2015, some MOOCs started to charge students a small amount of tuition fees for course certificates. In India, the Government has been investing in and facilitating implementation of what may be termed India's own adaptation of MOOCs. A Rs 38 crore (approximately USD 6 m) pact between the AICTE and Microsoft for building and running the SWAYAM platform was signed in June, 2016. Although Governmental initiative is a strong motivator and plays a pivotal role in development, it leaves a question mark with respect to the sustainability of the initiative. As one study participant put it, 'MOOC uptake and financial stability is the core agenda for its sustainability in India in the future.'

Imparting practical and skill-based education and training through MOOCs

Commonwealth of Learning (2013) proclaimed that MOOC 'as a support technology is likely to be useful in faster diffusion of intermediate skills on a mass scale'. However, for MOOC to play an important role in skills training, authors Venkataraman & Kanwar point out,

“a series of trials and prototypes are necessary to determine the nature and extent of blending MOOCs with existing approaches to imparting skill training related to quality assurance, assessment, certification, and credentialing” (Venkataraman & Kanwar 2015, p. 10).

There have been no reported data bringing out the extent of usage of MOOC methodology and delivery styles in existing programmes of Skill India (<http://www.skillindia.gov.in/>). As one of our study participants aptly pointed out: ‘Inadequacies in pedagogy in MOOCs must be addressed if MOOC is to be the core technology, if not the sole technology, for dissemination of practical and skill-based education and training.’ Most of the experts in our panel acknowledged the difficulties in imparting such education and training through MOOCs on a mass scale.

Fear of college teachers’ replaceability by MOOCs

Replaceability of brick and mortar institutions and college teachers by MOOCs seems to have been a global concern (Oremus 2013). Not surprisingly, this issue came up from an analysis of potential bottlenecks for MOOC development and adoption in India and China. Although this issue has long been settled in the West with a ‘no’ answer (Oremus 2013) and even in the recent EMOOCs 2017 conference it was reiterated “how MOOC providers are not an alternative to traditional colleges, but a strategic partner” (Shah 2017), many people in India as well as China still have reservations about whether MOOCs would replace physical universities and university lecturers would lose their jobs. Such questions were raised by a few participants in the national brainstorming session on MOOCs in India organized by the Consortium for Educational Communication (CEC) in October, 2015 in which one of the current authors was a participant. Similarly, “... there are fears (in China) that MOOCs through digitalizing education not only endanger academic jobs, but even pose a threat to whole institutions and might push some weaker universities out of business when students choose to study at top universities via MOOCs over enrolling at a traditional low tier university” (The Embassy of Switzerland in China 2014, p. 5).

MOOCs as Neocolonialism

MOOCs can also be a vehicle to convey culture and worldviews. There has been a concern regarding MOOCs as ‘neocolonialism’ – the perception and theoretical position that Western MOOCs are super-imposing their agendas, beliefs and syllabus to the global South through the propagation of MOOCs (Lane & Kinser 2012; Daniel 2012; Portmess 2013). University of South Africa already labeled OER a form of intellectual neo-colonialism at the 2009 Unesco world conference (Uvalić-Trumbić & Daniel 2011). Some Chinese professors as Prof. Zhang Jiahua from China Agricultural University are concerned that “foreign ideas” might be imported via MOOCs and that it will affect the Chinese ideology and socialism (The Embassy of Switzerland in China 2014, p. 5). However, this was not considered a very important concern for MOOCs as per our Delphi participants.

Study limitations and suggestions for future research

Our study had a few limitations. First, the Delphi research method itself has some well-known limitations owing to its iterative nature and potential ability of investigators to mould opinions (Altschuld 2003). Besides, an assumption concerning Delphi participants is that they are equivalent in knowledge and experience (Altschuld & Thomas 1991). In case of our Delphi study, this assumption could not be justified. As a result, the study outcomes could be the results of collating a series of general statements rather than an in-depth deliberation on the topic (Altschuld & Thomas 1991).

Secondly, it was noted that our panelists used terms and phrases such as MOOC, student or learner, open, online education, pedagogical expertise, skill-based education and training, MOOC design, localization, MOOC and MOOC formats, MOOC methodology and delivery style, information and social media literacies, MOOC learning model and neo-colonialism in divergent ways to describe similar variables or phenomena. The investigators had to collate and convey the multiplicity of sensibilities and the conversation was dedicated more to moderating vocabulary misconceptions rather than debating priority issues with MOOC offerings in India and China.

Thirdly, the small size of the panel of ten MOOC experts – especially with only three experts on China - limited the diversity and depth of the discussions, especially those pertaining to China. Due to this we could not perform a separate Delphi investigation for the Chinese context only and could only conduct a composite exploratory Delphi study to identify the important issues with MOOC design and implementations in India and China in general. It is quite possible that a full-fledged study on China only would bring out other issues and produce issue rankings very different from the ones found in this study. For the future, separate, large- scale Delphi investigations for China and India may be conducted for a more nuanced and an in-depth exposition of the issues in both the cases respectively and to bring out any differences.

Finally, paucity of space (word-limit) did not allow a full-fledged discussion of each of the issues that came out of the Delphi. We regret not being able to present and unpick comprehensively the wider discourse on each of these themes and issues in the context of MOOCs internationally before presenting the Indian and Chinese case. For the future we would suggest conducting discussion of the issues with MOOC development in India and China with reference to a global literature review which had unpicked the current discourse on MOOCs so that gaps, differences and similarities might be identified.

SUMMARY AND CONCLUSIONS

We deliberated on MOOCs in India and China and presented our critical discussion informed by our own experience and MOOC-experts' views. The conversations that emerged provide a unique insight into how experts view the MOOC in India and China. The concept of the MOOC is perceived as valuable for Chinese and Indian HE systems in several ways. While staying with the MOOC technology and a minor shift in pedagogy, HE institutions in India and China may explore MOOCs/ blended MOOCs as a way to complement efforts to improve quality and scale in their respective systems. Beyond formal HE, MOOCs have a larger potential role in the non-formal and informal education and indeed in general development too. The following quote from a study respondent summarizes the discussion regarding MOOCs' potential in developing countries like India and China:

“MOOCs may potentially drive a larger strategy that increases access and builds capability for anyone to learn effectively what they want or need to learn. However, this potential may be realized, provided the MOOC design, pedagogical, delivery and certification issues are successfully resolved and sincere localization efforts made.”

Both the Governments in China and India seem to have reposed faith in the MOOC concept as is evident from the recent policy support (MOE 2015 b), (MHRD 2016). However, it was found that both the development and delivery of MOOCs in India as well as China need further refinement. Major issues there were identified, ranked and discussed on the basis of a small-scale Delphi study. The authors see several MOOC imperatives emerging from our introductory discussion. These are in the nature of desirable adaptations and facilitators for successful MOOC implementations including design of MOOC with an engaging learning ecosystem, Internet connectivity, digital literacies of learners as well as teaching staff, offline/light access of the MOOC platform, developing organic MOOCs in regional languages, offering credit equivalence

and implementing MOOCs in blended mode with flipped classrooms and local facilitators. The economics as well as the academic officialdom of MOOCs in India and China must take cognizance of these imperatives. Integration of these elements into superior MOOC development and delivery would improve chances of 'MOOC-Nirvaan' in our countries – a state characterized by 'success' of MOOC learners and the ventures servicing them. Besides, it would facilitate resurrection of the very idea of the MOOC, which has been struggling to emerge from the Trough of Disillusionment on the Gartner Hype Cycle (Linden & Fenn 2003) globally, to the Slopes of Enlightenment. *Tathastu* (Amen)!

REFERENCES

- Abdon, B., Raab, R. & Ninomiya, S. 2008, "eLearning for international agriculture development: Dealing with challenges". *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, vol.4, no.1, pp. 80-94.
- ACE. 2015, *Credit for Prior Learning*. [Online] Available at: <http://www.acenet.edu/news-room/Pages/Top-Story.aspx?k=PrimaryTopic%3A%22Credit%20for%20Prior%20Learning%22&start1=1>
- Altschuld, J.W. 2003, Delphi technique. Lecture, applied evaluation design.
- Altschuld, J.W. & Thomas, P.M. 1991, "Considerations in the application of a modified scree test for Delphi survey data". *Evaluation Review*, vol. 15, no. 2, pp.179-188.
- Ambient Insight, 2015, *The 2015-2020 China Self-paced eLearning Market*. [Online] Available at: http://www.ambientinsight.com/Resources/Documents/AmbientInsight_2015-2020_China_Self-paced-eLearning_Market_Abstract.pdf
- Bady, A. 2013, "The MOOC bubble and the attack on public education". *AcademicMatters: The Journal of Higher Education*, vol. 8, no.1.
- Bayne, S. & Ross, J. 2014, *The pedagogy of the Massive Open Online Course: The UK view*. York, UK: The Higher Education Academy.
- Bhattacharyya, R. 2013, US-based MOOCs consortia in tie-ups with local universities for taking content online. *The Economic Times*, 19 July.
- Chai, Y. and Yang, L.S. 2014 June, A Literature Review of MOOC. In *3rd International Conference on Science and Social Research (ICSSR 2014)*. Atlantis Press.
- Chen, J. C. C. 2013, *Opportunities and challenges of MOOCs: perspectives from Asia*. [Online] Available at: <http://library.ifla.org/157/7/098-chen-es.pdf>
- Che, X., Luo, S., Wang, C. & Meinel, C. 2016, "An attempt at mooc localization for chinese-speaking users". *International Journal of Information and Education Technology*, vol. 6, no. 2, p. 90.
- China University of Geosciences (CUG). 2015, [Online] Available at: <http://jwc.cug.edu.cn/PageView.aspx?id=1349> [Accessed 28 June 2016].

- Clark, D. 2013. MOOCs: taxonomy of 8 types of MOOC. Donald Clark Plan B.
- Class Central. 2015, *5 Biggest MOOC Trends of 2015 - Continued Growth in MOOCs fueled by Expanding Availability, Monetization and Funding*. [Online]
Available at: <https://www.class-central.com/report/5-mooc-trends-of-2015/>
- Class Central. 2016, *6 Biggest MOOC Trends of 2016*. [online] Available at: <https://www.class-central.com/report/biggest-mooc-trends-2016/>
- CNMOOC News. 2015, [Online]
Available at: <http://www.cnmooc.org/home/media-1.mooc>
- Commonwealth of Learning. 2013, *Events*. [Online]
Available at: <http://www.col.org/news/Connections/2014Mar/Pages/Events.aspx>
- Conole, G. G. 2014, "A new classification schema for MOOCs". *The International Journal for Innovation and Quality in Learning*, vol. 2, no. 3, pp. 65-77.
- Conole, G. G. 2015, "MOOCs as disruptive technologies: strategies for enhancing the learner experience and quality of MOOCs". *Revista de Educación a Distancia*, Issue 39.
- Cross, J. 2015, *Aha! Get Smart*. Lulu. com.
- Daniel, J. 2012, "Making sense of MOOCs: Musings in a maze of myth, paradox and possibility". *Journal of Interactive Media in Education*, Issue 3.
- Downes, S. 2007, An Introduction to Connective Knowledge. In: T. Hug, ed. *Media, Knowledge & Education – Exploring new Spaces, Relations and Dynamics in Digital Media Ecologies. Proceedings of the International Conference held on June 25-26, 2007*.
- Downes, S. 2010. Fairness and equity in education. *Huff Post Education*.
- Downes, S. 2012a, *International MOOCs Past and Present*. [Online]
Available at: <http://halfanhour.blogspot.in/2012/11/international-moocs-past-and-present.html>
- Downes, S. 2012b, *What a MOOC Does - #Change11*. [Online]
Available at: <http://halfanhour.blogspot.in/2012/03/what-mooc-does-change11.html>
- Ebben, M. & Murphy, J. S. 2014, "Unpacking MOOC scholarly discourse: a review of nascent MOOC scholarship". *Learning, Media and Technology*, vol. 39, no. 3, pp. 328-345.
- Flynn, J. T. 2013, "MOOCs: Disruptive Innovation and the Future of Higher Education". *Christian Education Journal*, vol.10, no. 1.
- Gasevic, D., Kovanovic, V., Joksimovic, S. & Siemens, G. 2014, "Where is research on massive open online courses headed? A data analysis of the MOOC Research Initiative". *The International Review of Research in Open and Distributed Learning*, vol.15, no. 5.
- Haggard, S., Brown, S., Mills, R., Tait, A., Warburton, S., Lawton, W. & Angulo, T. 2013, *The Maturing of the MOOC: literature review of massive open online courses and other forms of online distance learning*, Department for Business, Innovation and Skills, UK Government.

- Hasan, R. 2013, *What is one accomplishment you are most proud of*. [Online]
Available at: <https://www.quora.com/What-is-one-accomplishment-you-are-most-proud-of#!n=12>
- Hasan, R. 2014, "The Shikhhok Project: Building an Ultra-low cost Crowdsourced MOOC for Non-English Speaking Students in South Asia". Cambridge, MA, *Learning with MOOCs: A Practitioner's Workshop*.
- Hew, K.F. & Cheung, W.S. 2014, "Students' and instructors' use of massive open online courses (MOOCs): Motivations and challenges". *Educational Research Review*, vol. 12, pp. 45-58.
- Ho, A. D., Reich, J., Nesterko, S. O., Seaton, D. T., Mullaney, T., Waldo, J., & Chuang, I. 2014, *HarvardX and MITx: The first year of open online courses, fall 2012-summer 2013*, HarvardX and MITx Working Paper No. 1.
- Huang, R., Li, B. & Zhou, L. 2016, "Information literacy instruction in Chinese universities: MOOCs versus the traditional approach". *Library Hi Tech*, vol.34, no.2.
- IIT Bombay, 2015, *Minutes Consultation Conclave on Blended MOOCs*. [Online]
Available at:
http://www.it.iitb.ac.in/frg/wiki/images/9/9a/Minutes_Consultation_Conclave_on_Blended_MOOCs.pdf
- iversity. 2014, March 24. *Meet Our Online Learning Friends from China: Guokr MOOC Academy* [Blog post]. Available at: <https://iversity.org/blog/china-guokr-mooc-academy/>
- Jacoby, J. 2014, "The disruptive potential of the Massive Open Online Course: A literature review". *Journal of Open, Flexible and Distance Learning*, vol. 18, no.1, p. 73.
- Jain, B.N., Gopalakrishnan, G., Mehra, L., Kannegal, M., Upadhyay, M., Pankaj, R. & Baxi, V. 2014, *indiamoocs*. [Online]
Available at: https://indiamoocs.files.wordpress.com/2014/07/ficci_visionpaper_mooc-he_v0-8.pdf
- Jiemodui (2014, May 8th) [Online] Available at: <http://edu.qq.com/a/20140508/079295.htm>
- Jordan, K. 2014. "Initial trends in enrolment and completion of massive open online courses". *The International Review of Research in Open and Distributed Learning*, vol.15, no.1.
- Kaplan, A.M. & Haenlein, M. 2016. "Higher education and the digital revolution: About MOOCs, SPOCs, social media, and the Cookie Monster". *Business Horizons*.
- Kaveri, A., Gunasekar, S., Gupta, D. & Pratap, M. 2015. Decoding the Indian MOOC learner. In: *3rd International Conference on MOOCs, Innovation and Technology in Education (MITE), 2015*. IEEE, pp. 182-187.
- Kendall, M. G. & Smith, B. B. 1939. "The problem of m rankings". *The annals of mathematical statistics*, vol. 10, no. 3, pp. 275-287.
- Kim, B. et al. 2015. *MOOCs and Educational Challenges around Asia and Europe*. Seoul: KNOU Press.

- Koller, D. 2012. *What we're learning from online education*. [Video]. Available at: http://www.ted.com/talks/daphne_koller_what_we_re_learning_from_online_education.html
- Kop, R. 2011. "The challenges to connectivist learning on open online networks: Learning experiences during a massive open online course". *The International Review Of Research In Open And Distributed Learning*, vol.12, no.3, pp.19-38.
- Kumar, N. 2015. *Adaption of Blended Learning MOOCs in India*, (Doctoral dissertation, IIT Bombay).
- Lane, J. & Kinser, K. 2012. "MOOCs and the McDonaldization of global higher education". *education*, 30536, p. 1.
- Linden, A. & Fenn, J. 2003. *Understanding Gartner's hype cycles. Strategic Analysis Report N° R-20-1971*, Gartner, Inc..
- Lingfeng, Z. 2016. *MOOCs shake up online education*, CCTV.com. [Online] Available at: <http://english.cctv.com/2016/05/15/VIDEGxEQdOtL9FUM74HPO3aC160515.shtml>
- Linstone, H.A. and Turoff, M. 2002. *The Delphi method: Techniques and applications*, vol. 18. Addison-Wesley Publishing Company, Advanced Book Program.
- Liyanagunawardena, T. R., Adams, A. A. & Williams, S. A. 2013. "MOOCs: A systematic study of the published literature 2008-2012". *The International Review of Research in Open and Distributed Learning*, vol.14, no.3, pp. 202-227.
- Martinez, S. 2014. OCW (OpenCourseWare) and MOOC (Open Course Where?). In: *Proceedings of OpenCourseWare Consortium Global*.
- McAuley, A., Stewart, B., Siemens, G. & Cormier, D. 2010. *The MOOC model for digital practice*. [Online] Available at: http://s3.amazonaws.com/academia.edu.documents/43171388/MOOC_Final.pdf?AWSAccessKeyId=AKIAJ56TQJRTWSMTNPEA&Expires=1475061570&Signature=PJAhqTfkYkF3ImLhrwmCtBEQJMw%3D&response-content-disposition=inline%3B%20filename%3DThe_MOOC_Model_for_Digital_Practice
- MHRD, 2016. *Guidelines for Development and Implementation of MOOCs*. [Online] Available at: <http://www.sakshat.ac.in/officeDocumentUploaded/2016-04-11/GuidelinesforDevelopmentandImplementationofMOOCsOn11.03.2016.pdf>
- Miller, T. 2010. Social Media Literacies and Perceptions of Value in Open Online Courses. *Bonnie Stewart ED*, pp. 612-701.
- Mirriahi, N. et al. 2015. "Blended learning innovations: Leadership and change in one Australian institution". *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, vol. 11, no. 1, pp. 4-16.
- MOE, 2015a. *2014 nian quanguo jiaoyu shiye fazhang tongji gongbao. [2014 Statistical Report on China Education Industry Development]*. [Online] Available at: http://www.moe.edu.cn/jyb_xwfb/gzdt_gzdt/s5987/201507/t20150730_196698.html

- MOE, 2015 b. *Jiaoyubu guanyu jiaqiang gaodeng xuexiao zaixian kaifang kecheng jianshe yingyong yu guanli de yijian*. [Suggestions by Ministry of Education on the construction and management of higher education open online courses]. [Online] Available at: <http://www.moe.edu.cn/publicfiles/business/htmlfiles/moe/s7056/201504/186490.html>
- Moe, R. 2016. The Phenomenal MOOC. In: G. Veletsianos, ed. *Emergence and Innovation in Digital Learning: Foundations and Applications*. Edmonton: Athabasca University Press, pp. 163-177.
- mooKIT, 2016. *The mooKIT Story*. [Online] Available at: <http://www.mookit.co/blogs/mookit-story>
- Oremus, W. 2013. *Forget MOOCs. Free online classes shouldn't replace teachers and classrooms. They should make them better*. [Online] Available at: http://www.slate.com/articles/technology/technology/2013/09/spocs_small_private_online_classes_may_be_better_than_moocs.html
- Perryman, L. A. & Seal, T. 2016. "Open Educational Practices and Attitudes to Openness across India: Reporting the Findings of the Open Education Research Hub Pan-India Survey". *Journal of Interactive Media in Education*, vol. 1.
- Phatak, D. B. 2015. Adopting MOOCs for quality engineering education in India. In: *Proceedings of the International Conference on Transformations in Engineering Education*. Springer India, pp. 11-23.
- Portmess, L. 2013. "Mobile Knowledge, Karma Points and Digital Peers: The Tacit Epistemology and Linguistic Representation of MOOCs". *Canadian Journal of Learning and Technology*, vol. 39, no. 2.
- Raffaghelli, J.E., Cucchiara, S. & Persico, D. 2015. "Methodological approaches in MOOC research: Retracing the myth of Proteus". *British Journal of Educational Technology*, vol. 46, no. 3, pp.488-509.
- Shah, D. 2016. *Monetization Over Massiveness: Breaking Down MOOCs by the Numbers in 2016: A Review of MOOC Stats and Trends in 2016*. [Online] Available at: <https://www.edsurge.com/news/2016-12-29-monetization-over-massiveness-breaking-down-moocs-by-the-numbers-in-2016>
- Shah, D. 2017. *MOOCs Find Their Audience: Professional Learners and Universities*. [Online] Available at: <https://www.edsurge.com/news/2017-07-06-moocs-find-their-audience-professional-learners-and-universities>
- Sharma, G. 2013. "A MOOC delusion: Why visions to educate the world are absurd". *The Chronicle of Higher Education*, vol. 15.
- Shi, X. and Yu, S., 2016. THE RISING OF CHINA'S MOOC: OPPORTUNITIES AND CHALLENGES TO THE HEIs. *Current Politics and Economics of Northern and Western Asia*, vol. 25, no. 1, pp.61.
- Siemens, G. 2004. *Connectivism: A Learning Theory for the Digital Age*. [Online] Available at: <http://www.elearnspace.org/Articles/connectivism.htm>
- Skill India Portal. [Online] Available at: <http://skillindia.gov.in/knowledge-centers>. Accessed Nov 15, 2016

- Smart, K. M., Blake, C., Staines, A. & Doody, C. 2010. "Clinical indicators of 'nociceptive', 'peripheral neuropathic' and 'central' mechanisms of musculoskeletal pain. A Delphi survey of expert clinicians". *Manual therapy*, vol. 15, no. 1, pp. 80-87.
- Sunstone Business School, 2012. *Sunstone Business School launches India's First MOOC in Management*. [Online] Available at: <http://www.prnewswire.com/news-releases/sunstone-business-school-launches-indias-first-mooc-in-management-184212551.html>
- Su, Y. S., Huang, C. & Ding, T. 2016. "Examining the Effects of MOOCs Learners' Social Searching Results on Learning Behaviors and Learning Outcomes". *Eurasia Journal of Mathematics, Science & Technology Education*, vol.12, no. 9, pp. 2231-2243.
- Tengxun Education, 2015. *Beida MOOC pingtai 'Huawen MOOC' shangxian, gaodeng jiaoyu mianfei laidao? [Beijing University 'Chinese MOOC' platform was released. Is higher education going to be offered for free?]*. [Online] Available at: <http://edu.qq.com/a/20150226/027504.htm>
- The Embassy of Switzerland in China, February 2014. *Situation analysis of MOOCs in China*. [Online] Available at: <http://www.swissnexchina.org/wp-content/uploads/sites/4/2014/08/MOOCs-in-China.pdf>
- TNN, 2016. Microsoft to design app for HRD ministry's SWAYAM platform. *The Times of India*, 17 June.
- Umarji, V. 2016. AICTE asks technical institutes to offer 10% of courses as MOOCs. *Business Standard*, 20 May.
- Uvalić-Trumbić, S. & Daniel, J. 2011. *Fostering Governmental Support for Open Educational Resources Internationally*. [Online] Available at: http://oasis.col.org/bitstream/handle/11599/1297/2011_UvalicTrumbicDaniel_GovSupportOER_Transcript.pdf?sequence=1&isAllowed=y
- Veletsianos, G. & Shepherdson, P. 2016. "A Systematic Analysis and Synthesis of the Empirical MOOC Literature Published in 2013–2015". *The International Review of Research in Open and Distributed Learning*, vol.17, no. 2.
- Venkataraman, B. & Kanwar, A. 2015-2016. Changing the Tune: MOOCs for Human Development? A Case Study. In: *MOOCs and Open Education Around the World*. New York: Routledge, pp. 206-217.
- Waldrop, M. 2013. Online learning: Campus 2.0. *Nature*, p. 495(7440).
- Wikipedia, The Free Encyclopedia. 2016, December 13. Creative Commons license. [Online] Available at: https://en.wikipedia.org/w/index.php?title=Creative_Commons_license&oldid=754498632
- Wildavsky, B. 2011. *An Indian Experiment in High-Quality Online Education*. [Online] Available at: <http://chronicle.com/blogs/worldwise/an-indian-experiment-in-high-quality-online-education/27845>

Xiao, X. 2015. *Conference Presentation: Qinghua daxue MOOC de xianzhuang yu weilai [The construction of MOOC platform in Qinghua University and its future prospects]*. Beijing: China International Distance Education Conference 2015.

Yousef, A. M. F., Chatti, M. A., Schroeder, U., Wosnitza, M., & Harald Jakobs. 2014. MOOCs- A Review of the State-of-the-Art. In: *Proc. CSEDU2014 conference, Vol. 3*. Barcelona: INSTICC, pp. 9-20.

Copyright for articles published in this journal is retained by the authors, with first publication rights granted to the journal. By virtue of their appearance in this open access journal, articles are free to use, with proper attribution, in educational and other non-commercial settings.

Original article at: <http://ijedict.dec.uwi.edu/viewarticle.php?id=2352>