

The Rise of MOOCs (Massive Open Online Courses) and Other Similar Online Courses Variants –Analysis of Textual Incidences in Cyberspace

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ABSTRACT

This study explores the rise of MOOCs stand for Massive Open Online Courses in India. With the objective of finding the year wise extent of occurrence of the selected keywords in the google databases of google search and google trends, data occurrence for the selected countries and whole world in google search and google trends and the probability of keywords searching by different Indian states and cities this research applies the present study is based on disruptive innovation theory proposed by Christensen (1997) and exploratory research. The study tried to sketch the canvas of online education and learning in various possible ways for Asia in General and India in particular. Since the internet medium is a dynamic world of change a mere quantitative analysis may not be the only conclusive method of gauging the popularity and potential of such trendy developments hence more such studies, both quantitative and qualitative with different objectives and scope are recommended.

Keywords: MOOCs, Google, Internet, India, Cyberspace.

INTRODUCTION

MOOCs stand for Massive Open Online Courses. The term "MOOC" was coined in 2008 by Canadian academician named David Cormier whereas first MOOC was taught by George Siemens and Stephen Downes in University of Manitoba, Canada where a class of 25 regular students was extended online to teach 1500 students. It is regarded as the buzzword in educational trends especially higher education. Some researchers have termed the MOOCs as the tsunami in the ocean of education which has challenged, if not threatened, the way traditional pedagogy is carried out in the educational institutions. In this technological development, traditional teaching methods are substituted by the online interaction between the teachers and students, entirely or partially. MOOC is known by different variants in the cyberspace –online courses, open courseware (OCWs), video lectures, online education, online studies, open educational resources etc. to name a few. All these variants inherently share the same DNA but slightly different individual properties depending upon the nature and context in which they are applied and put in use. Massive open online courses (MOOCs) first appeared on the horizon of higher education in 2008, with the launch of Connectivism and Connective Knowledge facilitated by George Siemens and Stephen Downes (Downes, 2008). The term 'MOOC' is generally attributed to David Cormier, and was used by both Siemens and Cormier to describe an

online course with large enrolments that was open not only in terms of enrolment, but also in terms of content, design, points of access, ways of application, and definitions of success (Weller, Siemens, & Cormier, 2012). Later on, the trend caught up fast with plethora of nonprofit and for profit educational ventures started offering courses taught by the best of the brains in the academia. Later on, top ranked universities also joined hands with these providers along with a few universities launching online courses of their own through their websites.

The MOOC philosophy is based on the premise that learning happens through network of connections. Various social networking tools like Facebook, GooglePlus, LinkedIn and micro blogging website like twitter along with many other blogging sites offer tremendous "share and learn" opportunities. The famous "six degrees of separation" concept, which says that every person in this world is reachable through 6 intermediate connections (Jirapinyo & Yang, n.d.) is now seriously under question with networks offering direct, one or two connection with the individuals.

Biggest crowd sourcing website Wikipedia.org¹ defines MOOC as online course aimed at unlimited participation and open access via the web. In addition to traditional course materials such as videos, readings and problem sets, MOOCs provide interactive user forums that help build a community for the students, professors,

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¹ Massive open online course - Wikipedia, the free encyclopedia. (2015). Retrieved July 13, 2015, from https://en.wikipedia.org/wiki/Massive_open_online_course

and teaching assistants (TAs). MOOC is an extension of "Open Educational Resources" movement which contribute positively to all forms of classroom types available – Distance education, online learning and Traditional classroom session". "Massive" means a few hundred thousand students can join it simultaneously. "Open" means it is openly accessible to anybody, anywhere, anytime 24x7x365 with the free use and reuse (with legitimate restrictions) of the source material. "Online" indicates that it is offered through the web. "Course" stands for a self-paced class, usually of 4-8 weeks, with students joining across the continents and interacting virtually and certificates or "statement of accomplishment" is awarded to the successful students after evaluation of exams online assignments either by auto grader or peer group. In a nutshell, MOOCs are the new medium of education through online teaching. Some experts term the MOOC as a disruptive technology i.e. the technology which demolishes the traditional structure of pedagogy and creates a new platform of learning something that fundamentally and changes the way we do things (Conole, 2013 & Christensen 1997), others call it a 'revolutionary supplement' in the diet of 'traditional pedagogy'.

TYPES OF MOOCS

There are two types of MOOCs – cMOOC and xMOOC. cMOOC stands for connectivist MOOC. It is based on the connectivist theory of education where connectivism, openness, and participatory teaching are the principles (Conole, 2013; Downes, 2013). Participants share their views, resources etc. on a particular topic and send it to the instructor. The latter sorts the material and organizes it into a sharable e-mail with embedded HTML links and send it to all the participants. This builds a "connective ecosystem" of the learning resources under a common platform. Some earlier MOOCs belonged to this category though cMOOCs are not in fashion any more. The xMOOC method revolves around the traditional college teaching model with video recorded lectures along with quizzes and other evaluation assignments and verifiable certificates or "statement of accomplishment" delivered online through some MOOC providing website. xMOOC (extended MOOC) is more of a behaviourist approach (Conole, 2013). The xMOOC uses the open source LMS (learning management system) for course management.

WHY MOOC

It is said that technology mutates faster than the microbes. Its mutations results in various

applications beneficial to all walks of life including E-learning. The Human Resource Development Ministry of India acknowledged the importance of MOOC by mentioning that the ministry intend to leverage the broadband network by embracing the 'Massive Open Online Courses' (MOOC) programme in a big way. "We want to embrace MOOC in a big way to increase the number of literates in the country. Institutions must become creators of knowledge, goal of the ministry is to see that universities and institutions lead the innovation agenda and be the catalyst for the process in the economy," it said. The ministry is stressing a lot on the usage of technology enhanced learning by funding an E-learning portal at www.nptel.iitm.ac.in. This "National Programme on Technology Enhanced Learning" (NPTEL) is a joint venture between Indian Institute of Science (IISc), Bangalore and Indian Institutes of Technology (IITs) largely on engineering subjects along with few resources on social sciences. Interest in MOOCs escalated so quickly that the *New York Times* declared 2012 'The Year of the MOOC' (Boyd & Kasraie, 2013). Time Magazine mentioned MOOC as opening the door to the "Ivy League for the masses" (Chalabi, 2013).

A report by New Media Consortia (NMC) Horizon Report 2013 (see NMC Horizon Report), which analyses the impact of key emerging technologies on education, describes six technologies in coming one to five years. These are – MOOC, Table Computing, Games and Gamification, Learning Analytics, 3D Printing and Wearable Technology. MOOC was rated as number one technology impacting education within next one year (i.e. 2014) and Wearable Technology in the farthest year (i.e. 2018). This report compiled from the inputs from the world's 500 leading experts on technology, education and other fields, is quite upbeat on the prospects of MOOC.

The "Innovation Pedagogy Report 2014" by Open University describes ten pedagogies which might transform education. These are – MOOCs, badges to accredit learning, learning analytics, seamless learning, crowd learning, digital scholarship, geo-learning, learning from gaming, maker culture and citizen inquiry (see Innovative Pedagogy, 2014). UNESCO's initiative on mobiMOOC (mobile MOOC) was quite popular which aimed at "using a mobile MOOC to increase educational quality for a diversity of learners through dialogue and ubiquity" and development of open educational resources. The world's largest and most powerful search engine Google has also recognized the MOOC potential by launching

www.mooc.org and free courseware building tool as “google course builder”. President of India, Sh.Pranab Mukherjee said “despite there being over 650 degree-awarding institutions and over 33,000 colleges in the country, there is a supply–demand gap and a lack of institutions providing quality education” (Chakrabarti & Ghosh (2013). The President also advocated that “it is important to introduce innovative technological solutions like e-classrooms to overcome this crisis” (Singai, n.d.). The US President Barak Obama also stressed the value of online courses for the US students. In a recent address to the American college students, he mentioned that some institutions were “testing new approaches to shorten the path to a degree, or blending teaching with online learning to help students master material and earn credits in less time.” (Brenchley,n.d.). Even the incumbent BJP government in its election manifesto promised that it Would set up Massive Open Online Courses (MOOC) and virtual classrooms to make it convenient for working class people and housewives to further their knowledge and qualifications(Election Manifesto, 2014). After coming to power, the BJP government planned to launch SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds) led primarily by the premier institutions like IITs and IIMs (Chaturvedi&Verma 2014).

MOOCS INITIATIVES BY EDUCATIONAL INSTITUTES

Twenty two of the top 25 US universities in US News World Report rankings are now offering courses online for free (Shah, 2014).India is very slow in catching up with the MOOC wave as no education institution until recently, came forward to offer free online courses to its students and other interested online netizens. This movement failed to evince interest in the Indian academia as high education regulators like University Grants Commission and All India Council for Technical Education didn't match up with the trend. However, reputed Indian institutes have come forward with their offerings on specialties. IIT-B has recently collaborated with Massachusetts Institute of Technology (MIT) and Harvard to launch Massive Open Online Courses (MOOCs) through its websites to all interested students for free. According to a news in The Economic Times, “Seven leading IITs, Infosys, TCS, Cognizant and NASSCOM are coming together to launch a bunch of free, online courses that could potentially help 100,000-150,000 people a year get high-quality education and make them job-ready.” (Bhattacharyya, 2013). Even a small Arab country like Jordan has tied up with Edx.org to

launch “Edraak”, a Arabic language MOOC for Arab world. EdX is a non-profit venture created by founding partners Harvard and world's topmost ranking university named Massachusetts Institute of Technology. Stanford University offers many online courses on its website specially designed and launched for MOOC. IIT Delhi has started offering MOOC in partnership with coursera, a US based largest MOOC provider. Private players have also helped in contributing to this education cause. The famous Khan Academy, supported by Bill and Melinda Gates foundation has numerous video lectures on various science subjects hosted on its websites. Recently,

MOOC PROVIDERS

The Most famous of the MOOC providers are coursera.org, edx.org, canvas.net, udacity.com, open2study.com,online.stanford.edu/courses, openculture.com, Alison.com, iversity.com etc. Together they offer 4-8 weeks courses in arts, biology & life sciences, business & management, computer sciences, education, media & communication, humanities, mathematics, medicine, environmental sciences, law, economics, food & nutrition, engineering and other wide varieties of subjects. They are offered predominantly in English as well as in French, Russian, Chinese, Spanish, Portuguese, Turkish, Japanese etc. Many of the courses are time paced whereas some of them are self paced. The entry to these courses is totally free and a student can enroll in as much courses as he or she deserves. All the educational resources like video lectures, assignments, discussion forums are available in archive even after the end of the course. The participants join the course specific user group and twitter hash tags which ensures their life long participation and idea exchange even after the end of the courses.

REVIEW OF LITERATURE

Bates (2014) cited a combination of different social, political, and economical reasons are responsible for the surprising high public interest in MOOCs which include the potential disruptiveness of MOOCs, involvement of highly respected institutions like Stanford, connections to Silicon Valley entrepreneurs, and the economic climate in the aftermath of the 2008 financial crisis. Kovanovic' et al reported that “results indicate that coverage of MOOCs in public media is rapidly decreasing: by the middle of 2014 it decreased by almost 50% from the highest activity during 2013.” In only nine months — between the third quartile of 2013 and the second quartile of 2014 — the number of MOOC articles dropped

by almost 50%. Keeping in mind the decrease in the MOOC coverage, it is not surprising that many of the discovered topics witnessed a decrease in their popularity over time (ibid).

LIMITATIONS

The study limits itself to the mentioning of keywords in the documents searched by google search engine from 2012-2015 for different countries. Similar is the case with google trends which shows tendency of searching by people for these keywords. The results of google trends show the relative popularity of the keyword in comparison to the total keywords searched and the data is adjusted by google for better comprehension and interpretation.

OBJECTIVES

Following specific objectives were devised to guide the study.

1. To find the year wise extent of occurrence of the selected keywords in the google databases of google search and google trends.
2. To find the data occurrence for the selected countries and whole world in google search and google trends.
3. To find the probability of keywords searching by different Indian states and cities.

THEORETICAL FRAMEWORK

The present study is based on disruptive innovation theory proposed by Christensen (1997). It was modified by him in a series of subsequent publications between 2003 and 2004 (Schmidt & Druehl, 2008). The theory originates in business research, and is used to explain the process whereby technological innovation allows sectors of business or industry to transform from being complicated, exclusive, and expensive to being simple, accessible, and affordable (Christensen, Horn, Caldera, & Soares, 2011 quoted in Jacoby, 2014). Schmidt & Druehl (2008) argued that in the process, people adopt the product and services that were rejected by them earlier.

RESEARCH METHODOLOGY

This is an exploratory study. The textual incidences counting method was adopted for the keywords decided for the study. One document containing the at least one keyword was counted as one incidence for each year starting from 2012 till 2014. Twofold approach was followed where in first one involved searching the google database using google power searching commands² for the keywords whereas the second approach involved searching of the google trends for the same. Given

the popularity of Google's search, the data from Google Trends is shown to be a reliable predictor of the current and past interests in many different fields (Choi & Varian, 2012; Rech, 2007). Both these searches involved searching the data originating from different countries by applying the country's domain name filter (e.g. site:.cn command showed results from China and site:.sg from Singapore etc.). This resulted in the data terms which people search on google and how all four keyword (aka terms) were searched in comparison to each other in google trends.

SAMPLE SELECTION

MOOCs (Massive open online courses), online education, video lectures, online course and open coursewares (OCWs) were the keywords adopted for the study after deciding the 5 top most terms used for online course material with the help of google. The list of countries selected were Indian, China, Pakistan, South Korea, Singapore Hong Kong and Japan. The first three countries were selected for the regional flavor whereas the last four one were chosen from the Times Higher Education's "Top 100, under 50" rankings (Asian Correspondent Staff, 2014). The last one was chosen from the compilation for the top education systems by Economic Intelligent Unit from top education system countries in the world.

KEYWORDS AND COMMANDS

The huge database of google was searched with the following power commands by clamping a 3 years filter (2012-2014).

1. "online courses" OR "online course"
2. MOOC OR "massive open online courses" OR "massive open online course"
3. "open courseware" OR OCW OR OCWs
4. "online education"
5. "video lecture" OR³ "video lectures"

FINDINGS

Google power search results for the keywords (MOOC, OCWs etc.) for google's complete database (world) revealed that online course ranked first (37.22%) followed by OCWs (21.57%), online education (16.36%), MOOC (16.05%) and video lectures (8.8%) as shown in Table 1. This shows that the documents available on the internet are largely dominated by online course(s) keyword which is a very generic term for ICT enabled education. Video lecture(s) keyword was

² The author is a google certified power search

³ OR is a Boolean operator used to search the google

least common amongst all for being too generic. In country wise analysis, India had the maximum instances (58.64% i.e. 1.64 lacs out of 2.79 lacs). China was much less with 19.26 % (53907) trailed

The Google trends data is adjusted statistically which means that it not absolute but relative. The results show that keywords like online courses (57.20%) and online education (25.40%) were

Table 1

Keywords	World	India	China	Pakistan	South Korea	Japan	Singapore	Hong Kong	Total
Online Course	3640000 (37.22)	113000	4700	2340	3270	8260	3760	80	135410 (48.40)
MOOC	1570000 (16.05)	2080	33300	40	13700	10900	72	61	60153 (21.50)
OCWs	2110000 (21.57)	3310	13000	78	85	69	62	46	16650 (5.95)
Online education	1600000 (16.36)	24900	2410	2850	1130	2330	1240	88	34948 (12.49)
Video Lecture	861000 (8.8)	20800	497	5550	2360	3360	54	37	32658 (11.67)
Total	9781000	164090 (58.64)	53907 (19.26)	10858 (3.88)	20545 (7.34)	24919 (8.91)	5188 (1.85)	312 (0.11)	279819

by Japan (8.91%), Pakistan (3.88%) South Korea (7.34%), Singapore and Hong Kong with 1.85% and 0.11% respectively. Since India has a huge population of 1.25 billion hence higher results are no surprise but it is appreciable in case of South Korea and Japan which are relatively smaller countries but are highly networked and thinly populated.

From the keyword centric analysis of these countries, online documents had maximum mention of online course (48.40%, 1.35 lacs) followed by MOOC (21.50%), online education (12.50%), video lecture (11.67%) and OCWs (5.95%). Results are slightly different than the country centric analysis where MOOCs was relegated to 3rd position. Hence in Asian context MOOCs and online courses are the recommended keywords.

TRENDS IN WORLD

The year wise breakup of the keywords searched by people on Google from around the world showed that there is around 3.5% increase in the searches on YOY (year on year) basis (Table 2).

searched more than MOOC (11.13%) and video lectures (4.85%) and OCWs (0.9%). It is clear that netizens still don't relish the technical terms like MOOCs and OCWs but more generic ones related to online. On the other side, MOOC was the only keyword which was searched more on YOY basis as compared to other keywords where some of them actually saw the decrease (OCWs, online education and video lectures)

TRENDS IN INDIA

Indian netizens pinned much hope on MOOC on YOY basis as compared to any other keyword in Google search (Table 3). The MOOC became popular from zero to 773 instances whereas OCWs were non-starter with zero figure. Online courses and online education fared good in 2014 only, to reach a double figure whereas they were almost stagnant in 2012 and 2013. Video lectures got a decrease in 2013 but doubled in 2014. So the results clearly show that MOOC is a promising keyword to popularize the techno enabled education and OCWs didn't cut ice.

Table 2

Year	OnlineCourses	MOOC	Open Courseware	Video Lectures	Online Education	
2012	3987	154	89	383	1999	6612 (30)
2013	4251	931	53	348	1883	7466 (33.85)
2014	4378	1371	52	341	1839	7981 (36.18)
Total	12616 (57.20)	2456 (11.13)	194 (0.9)	1072 (4.85)	5721 (25.4)	22059

Table 3

India	Online Courses	MOOC	Open Courseware	Video Lectures	Online Education	Total
2012	3029	0	0	1851	3277	8157
2013	3414	296	0	1694	3343	8747
2014	6818	773	0	3058	6264	16913
	13261	1069	0	6603	12884	33817

TRENDS IN CHINA

Trends in China were on the unexpected lines (Table 4). Chinese net surfers could search the MOOC keyword in 2013 and 2014 (50% increase). It was a total blackout for all other online courses, video lectures etc. Chinese version of the internet is tightly regulated where YouTube is blocked and Chinese law requires “internet and information systems to be secure and controllable” (Agence France-Presse, 2015). Even the Google hangout, which is defacto interactive tool these days in MOOC, is blocked. Most online course providers (with a few exceptions like Coursera, edX etc.) post their video lectures on YouTube during course and for archives afterwards.

TRENDS IN INDIAN STATES

Further data segmentation as per the different states (Table 5) revealed that online courses were the maximum searched keyword (37.81%) followed by video lectures (25%) and online education (22%). MOOC was the least searched term from by all the different states (15.21%). Hence it is amply clear that a technical term like MOOC may not be liked by the netizens and most of them query in any possible manner suggestive of MOOC. Karnataka was pioneer in searching for the MOOC whereas states searching the keywords to the maximum were Pondicherry for online courses, Uttarakhand for video lectures and Madhya Pradesh for online education. Tamil Nadu and Uttar Pradesh seemed aspiring very much for MOOC, Kerala, Karnataka, Uttar Pradesh and Uttarakhand searched for online education in descending order. Odisha and Andhra Pradesh were the next two top searchers for video lectures whereas Pondicherry and Andhra Pradesh searched the online education. However, on a cumulative scale, the states like Andhra Pradesh (272), Karnataka (254), Uttarakhand (216) and Tamil Nadu (214) searched more for all the five keywords collectively. Hence it can be inferred that these states have high potential of virtual education. Chhattisgarh (38) and Bihar (36) had the least score on this scale where the netizens didn't prefer the technology enabled education. A total blackout was observed in case of Jammu & Kashmir, Himachal Pradesh and all other north eastern states. Similarly, there was no taker for OCWs hence this term over the years, may go into the oblivion with more trendy terms coming in fashion.

Searches done from Indian cities – Only top two and last two cities which searched these keywords are mentioned here for every keyword

separately. Table 6 shows that online education was top searched by Jabalpur (100) and Gwalior (86) and Jaipur and Bhubneshwar (16 each) ranked least on the scale. MOOC was preferred by Chinchwad (100) and Noida (69) and were not search well by Howrah (31) and Pune (18). Data for other search terms was either not available or was insignificant.

Popular search strings–The keywords mentioned here are perhaps not likely to be searched alone but in combination with popular search strings e.g. free online courses, free video lectures etc. When the search was done in this fashion then “free” word was found to have a highly significant potential in being searched (Table 7). It shows that freebies are in much demand everywhere including education sector. “Free online courses” was the top search string (100) searched by the Indian netizens followed by “free courses” (95). Online learning and online certification courses were least popular (15 each). Similarly for video lectures, “free video lectures” (100), nptel lectures (90) were the top most searched strings followed by IIT lectures (65), online lectures and online video lectures (65 each). Data for other search terms was not available.

CONCLUSIONS

The study tried to sketch the canvas of online education and learning in various possible ways for Asia in General and India in particular. Indian cyber surfers are still fascinated more with the traditional nomenclature of search strings like online education/courses etc. From Asian perspective, MOOC has received a very good mention in frequency terms, in the documents hosted online. In all the countries (except Singapore) having top education system, the MOOC keyword was mentioned maximum after online course. MOOC, at best, can be regarded as an upcoming terminology in virtual education and till date (December, 2014) it has not gained its desired position in India vis a vis its other similar keywords. OCWs has becoming redundant very fast and “free” stuff movement is catching very fast. Overall, Madhya Pradesh has significant potential for the online system of education. Since the internet medium is a dynamic world of change a mere quantitative analysis may not be the only conclusive method of gauging the popularity and potential of such trendy developments hence more such studies, both quantitative and qualitative with different objectives and scope are recommended.

Table 4

China	Online Courses	MOOC	Open Courseware	Video Lectures	Online Education
2012					
2013		1082			
2014		1412			

Table 5

Indian States	Online Courses	MOOC	Open Courseware	Video Lectures	Online Education	Total
Pondicherry	100				53	153
Kerala	97			37	37	171
Karnataka	82	100		38	25	245
Andhra Pradesh	81	59		80	52	272
Uttarakhand	80			100	36	216
Jharkhand	77			65	31	173
Haryana	77			38	36	151
Tamil Nadu	74	81		29	30	214
Odisha	65			77	35	177
Uttar Pradesh	59	73		40	27	199
Delhi	53	51		23	23	150
Madhya Pradesh	53			53	100	206
Gujarat	49	44		32	23	148
Maharashtra	48	49		22	17	136
Rajasthan	45			33	33	111
Punjab	45			37	32	114
Assam	44			39	21	104
West Bengal	40	40		28	21	129
Chandigarh	34			20	19	73
Bihar	32			25	29	86
Andaman and Nicobar Islands						
Arunachal Pradesh						
Chhattisgarh					38	38
Daman and Diu						
Dadra and Nagar Haveli						
Goa						
Himachal Pradesh						
Jammu and Kashmir						
Lakshadweep						
Meghalaya						
Manipur						
Mizoram						
Nagaland						
Sikkim						
Tripura						
	1235 (37.81)	497(15.21)		816 (25)	718 (22)	3266

Table 6

Top Cities	Online Education	Top Cities	MOOC
Jabalpur	100	Chinchwad	100
Gwalior	86	NOIDA	69
Indore	42	Bangalore	63
Bhopal	40	Chennai	47
Vijayawada	38	Hyderabad	37
Nellore	35	Mumbai	37
Visakhapatnam	33	New Delhi	33
Kozhikode	24	Howrah	31
Puducherry	23	Pune	18
Secunderabad	22		
Hyderabad	21		
Coimbatore	20		
Thiruvananthapuram	19		
Jaipur	16		
Bhubaneswar	16		

Table 7

Top Search Queries in Online Courses		Top searches for video lectures	
free online courses	100	free video lectures	100
free courses	95	nptel lectures	90
online certificate courses	25	nptel	90
online training courses	20	nptel video	90
computer courses	20	nptel video lectures	90
online computer courses	20	IIT lectures	65
online management courses	20	IIT video lectures	65
online education	15	online lectures	40
online certification courses	15	online video lectures	40
online learning	15	engineering video lectures	35
		MIT lectures	35
		video lectures MIT	35
		physics video lectures	20
		c video lectures	15
		java video lectures	15
		gate video lectures	15
		nptel videos	15
		ipcc video lectures	10
		chemistry video lectures	10
		nptel video lecture	10
		stanford video lectures	10
		c++ video lectures	5
		aptitude video lectures	5
		linux video lectures	5
		ias video lectures	5

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