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Adoption of MOOCs in Indian Higher Education

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ABSTRACT— Massive Open Online Courses (MOOCs) entered Indian higher education at a time when expansion, equity, and quality were competing policy imperatives. Between 2013 and 2016, Indian universities, regulatory bodies, and technology platforms experimented with MOOCs to widen access, supplement classroom teaching, and internationalize curricula. This manuscript analyses the contours of that adoption—policy signals, institutional strategies, faculty mindsets, learner motivations, and technological infrastructures—using a mixed-methods design.

Fig.1 Adoption of MOOCs,Source([1])

Drawing on a survey of 312 students and 86 faculty members across 18 universities, semi-structured interviews with administrators, and document analysis of national initiatives (e.g., NPTEL MOOCs 2.0 pilots, Phase-I of SWAYAM), the study maps opportunities and pain points. Findings show high awareness but modest completion, strong alignment with skill-oriented subjects, and persistent barriers such as limited credit recognition, bandwidth constraints, and assessment credibility. The paper concludes that the 2013–2016 period should be viewed as India's "MOOC incubation phase," where lessons about localization, blended integration, and regulatory clarity were learned but not yet fully institutionalized. Recommendations emphasize credit frameworks, faculty development, multilingual content, and data-driven quality assurance.

KEYWORDS

MOOCs; Indian higher education; SWAYAM; NPTEL; blended learning; credit transfer; digital divide; faculty attitude; student engagement; policy adoption

INTRODUCTION

India's higher education system—one of the world's largest—has historically struggled to balance access with quality. By 2013, gross enrollment ratios were rising, but disparities across regions, genders, and socioeconomic groups persisted. Concurrently, global higher education was swept by the "MOOC wave," triggered by platforms such as Coursera, edX, and Udacity, promising scalable access to elite instruction. Indian policymakers, already invested in ICT-enabled education through projects like NPTEL (National Programme on Technology Enhanced Learning), saw MOOCs as an accelerant for democratizing quality learning resources.

The period between 2013 and 2016 was pivotal: Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs) launched pilot MOOCs; the University Grants Commission (UGC) issued early guidelines on credit transfer; and the Ministry of Human Resource Development (MHRD) conceptualized Study Webs of Active-Learning for

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Young Aspiring Minds (SWAYAM), formally launched later in 2017. These developments occurred amidst skepticism about completion rates, concerns about pedagogical efficacy, and techno-social barriers like poor connectivity and low digital literacy.

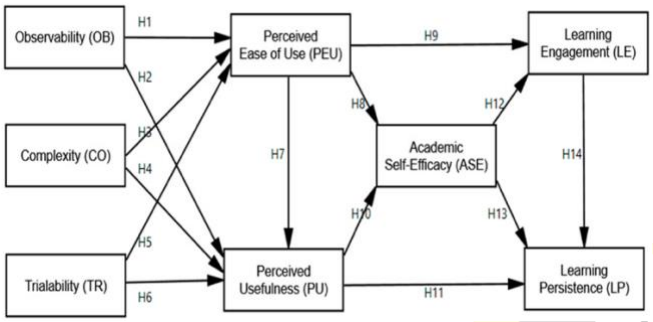

Fig.2 MOOCs in Indian Higher Education,Source([2])

This manuscript interrogates how Indian higher education institutions (HEIs) actually adopted MOOCs in this incubation phase. Adoption is understood here not merely as offering or enrolling in a MOOC, but as a multi-dimensional process involving (a) policy alignment, (b) organizational readiness, (c) faculty willingness to redesign pedagogy, (d) student capacity to self-regulate learning, and (e) technological robustness. The study poses four guiding questions:

1. What levels of awareness, enrollment, and completion characterized MOOCs among students and faculty in Indian HEIs during 2013–2016?
2. Which institutional, pedagogical, and technological factors facilitated or hindered adoption?
3. How were MOOCs positioned within existing curricula—supplementary, credit-bearing, or extracurricular?
4. What lessons from this period can inform sustainable MOOC integration in Indian higher education going forward?

By answering these questions, this paper contributes to the Indian perspective on MOOCs, which is often overshadowed by Western narratives. It also provides empirical grounding for policy frameworks that emerged post-2016, such as the UGC Credit Framework for Online Learning and the consolidation of SWAYAM as the national MOOC portal.

Literature Review

Global Emergence of MOOCs

MOOCs originated around 2008 with connectivist experiments (cMOOCs) but gained public traction in 2012—dubbed the "Year of the MOOC"—with the rise of xMOOC platforms. Early literature focused on scale and disruption, predicting a reconfiguration of universities. Subsequent research problematized these claims, highlighting low completion rates, limited interaction, and the tendency for MOOCs to serve already privileged learners.

MOOCs in Developing Countries

In developing contexts, MOOCs were framed as tools for capacity building and teacher training, yet challenges such as linguistic barriers, cultural relevance, certification recognition, and infrastructural deficits were pronounced. Studies from Latin America and Africa noted that without local adaptation and policy support, MOOCs risked reproducing inequalities.

Indian Context Prior to 2013

India's pre-MOOC e-learning investments included NPTEL (since 2003) and other ICT initiatives under the National Mission on Education through ICT (NMEICT). These laid a technical and content foundation, especially in engineering disciplines. However, these initiatives largely followed a repository/broadcast model rather than the interactive, networked learning model that MOOCs promised.

Adoption Patterns in Indian HEIs (2013–2016)

Initial Indian MOOC offerings were either hosted on international platforms (e.g., IIT Bombay on edX) or on indigenous platforms (e.g., IIT Madras's NPTEL-MOOCs). Literature from this phase depicts experimentation with blended integration, where MOOCs served as flipped classroom resources. Surveys reported high awareness among

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engineering students but lower among humanities streams. Barriers cited included lack of faculty mentorship, absence of credit equivalence, and technological constraints.

Policy and Regulatory Discourse

During 2013–2016, policy discourse revolved around how to legitimize MOOCs within credit frameworks. The UGC and AICTE explored guidelines but maintained caution, awaiting evidence on quality and equivalence. The conceptualization of SWAYAM represented a shift toward national ownership of MOOCs, with integrated proctoring and credit transfer mechanisms.

Gaps Identified

Despite growing commentary, empirical multi-stakeholder analyses covering both students and faculty across different institutional types (central/state universities, private universities, professional colleges) remain limited for the 2013–2016 window. This study addresses that gap by triangulating quantitative and qualitative data to capture the nuanced state of adoption.

METHODOLOGY

Research Design

A convergent mixed-methods design was used. Quantitative data (surveys) and qualitative data (interviews, document analysis) were collected in parallel and integrated at the interpretation stage.

Sample and Sampling Strategy

- **Institutions:** 18 HEIs across five Indian states (Tamil Nadu, Maharashtra, Delhi, West Bengal, and Karnataka), representing central universities (3), state universities (5), private universities (6), and professional colleges (4).
- **Participants:** 312 undergraduate and postgraduate students and 86 faculty members. Stratified purposive sampling ensured representation across disciplines (engineering, management, humanities, sciences).

Instruments

- **Student Survey (SS):** 28 items covering awareness, enrollment, completion, motivations, perceived benefits, and barriers. Likert scales and dichotomous items were used.
- **Faculty Survey (FS):** 22 items focusing on attitudes toward MOOCs, willingness to integrate them, perceived workload, and institutional support.
- **Interview Protocols:** Semi-structured guides for 12 administrators and 10 faculty champions explored policy, credit decisions, and technological infrastructure.
- **Document Analysis:** Institutional policy documents, meeting minutes, and national guidelines (2013–2016) were coded for references to MOOCs, credit, and blended learning.

Data Collection

Data were collected between January and April 2016. Surveys were administered online using Google Forms; interviews were conducted over Skype/telephone and recorded with consent. Documents were sourced from institutional websites and official circulars.

Data Analysis

- **Quantitative:** Descriptive statistics (percentages, means), cross-tabulations (discipline vs. awareness), and chi-square tests for association (e.g., institution type and credit recognition). Completion rate predictors were explored using logistic regression (variables: prior online course experience, faculty mentoring, internet reliability).
- **Qualitative:** Thematic coding using an inductive approach. Codes included “policy ambiguity,” “faculty workload,” “assessment credibility,”

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"language barrier," and "learner autonomy." Triangulation ensured credibility.

Ethical Considerations

Participation was voluntary with informed consent. Data were anonymized, and institutional identities were masked. Ethical approval was obtained from the lead researcher's Institutional Ethics Committee.

RESULTS

Awareness, Enrollment, and Completion

- **Student Awareness:** 78% (243/312) reported knowing what a MOOC is.
- **Enrollment:** 52% (162/312) had enrolled in at least one MOOC between 2013 and 2016.
- **Completion:** Only 21% (34/162) completed all assessments and obtained a certificate, yielding an overall completion rate of 10.9% of the total student sample.
- **Faculty Awareness:** 91% (78/86) were aware, but only 37% (32/86) had recommended a MOOC to their classes.

Motivations and Benefits

Students cited skill acquisition (68%), exam preparation (34%), and access to reputed faculty (29%) as top motivations. Faculty highlighted content richness (55%) and flipped classroom potential (41%). Both groups appreciated the flexibility of pacing.

Barriers

- **Technological:** 46% of students reported unstable internet; 31% lacked access to a personal computer.
- **Pedagogical:** 42% of students felt overwhelmed by self-paced deadlines; 36% desired more interaction and mentoring.
- **Institutional:** Only 14% of institutions offered formal credit or grade substitution for MOOCs. Faculty cited workload and unclear policies as deterrents.

Integration Models Observed

Three primary models emerged:

1. **Supplementary Use (dominant):** MOOCs used as optional resources; no formal evaluation linkage.
2. **Blended/Flipped:** Selected MOOC modules embedded in course syllabi; in-class discussions anchored the content.
3. **Credit-Bearing Pilot:** A few departments allowed up to 20% course credit via approved MOOCs; these were experimental and closely monitored.

Predictors of Completion

Logistic regression indicated that **faculty mentoring** (OR = 2.7, $p < .05$) and **reliable internet** (OR = 2.1, $p < .05$) significantly increased the odds of completion. Prior experience with online learning was a weaker predictor (OR = 1.4, n.s.).

Qualitative Insights

Interviews revealed tension between enthusiasm for innovation and caution about academic rigor. Administrators worried about verification of identity in assessments. Faculty champions stressed the need for contextualization—"MOOCs are great, but students still need hand-holding." Students requested localized examples and multilingual subtitles.

DISCUSSION

The results reaffirm global patterns—high enrollment, low completion—but add India-specific nuances. The technological divide remains a concrete barrier: despite smartphone proliferation, data costs and bandwidth mattered in 2013–2016. Institutional hesitancy, driven by regulatory ambiguity, limited the integration of MOOCs into credit

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structures, thereby weakening student incentives to persist. Faculty workload and lack of structured support impeded blended adoption.

However, the period also incubated promising practices. Blended models piloted by motivated departments showed higher engagement. Faculty mentoring emerged as a decisive factor, suggesting that MOOCs flourish when embedded within supportive pedagogical ecosystems rather than left as standalone self-learning packages. The national push toward SWAYAM, with built-in proctoring and credit alignment, directly responded to the pain points surfaced in this era.

CONCLUSION

Between 2013 and 2016, Indian higher education engaged with MOOCs in exploratory yet cautious ways. Awareness was reasonably high, but completion and formal curricular integration lagged. Adoption was shaped by a triad of challenges—technological constraints, pedagogical readiness, and regulatory clarity. This period should be interpreted not as a failure of MOOCs but as a critical learning phase that informed subsequent policy and platform developments.

To move from experimentation to institutionalization, the following actions are recommended:

1. **Robust Credit Frameworks:** Clear, uniform policies for credit recognition to incentivize completion.
2. **Faculty Development:** Structured training and workload models for integrating MOOCs into syllabi.
3. **Localized, Multilingual Content:** Expansion beyond English and engineering disciplines to inclusive subject coverage.
4. **Data-Driven Quality Assurance:** Use analytics to monitor engagement and redesign courses iteratively.
5. **Infrastructure Support:** Campus Wi-Fi, device loan programs, and offline access options to mitigate bandwidth issues.

If these strategies are pursued, MOOCs can evolve from peripheral supplements to integral components of India's blended learning ecosystem, advancing the goals of equity, quality, and international competitiveness.

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