

Understanding a Decade of Outcome-Based Education in India: A Review of Implementation Challenges and Educational Outcomes

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Abstract— Outcome-Based Education (OBE) is a paradigm shift in Indian engineering instruction, with the aim of enhancing quality and relevance of educational programs. This review paper discusses the implementation of OBE in Indian engineering colleges, focusing on problems faced and educational outcomes reported in the literature. The review integrates findings from published research studies to cite major impediments like inadequate faculty training, disconnect between learning outcomes and assessment strategies, and resistance to pedagogical transformation in institutions. It also checks against cited impacts on student learning, development of graduate skills, and curriculum design. The review findings are that although OBE has brought a learner-centred and more holistic conception of education, its impact varies widely between institutions. The study identifies areas requiring increased priority and suggests avenues for further integrating OBE into engineering education. This review adds to a better understanding of the prevailing state of OBE in India and proposes areas of research and practice in the future.

Keywords—Outcome-based Education, Indian Education, Learner-centric Approach, National Education Policy, OBE
JEET Category— Research

I. INTRODUCTION

Over the past few years, India has made large-scale changes in its education sector, with a major focus on upgrading quality, responsibility, and significance. One of the foremost discernible changes has been the utilize of Outcome-Based Education (OBE) a student-centered framework of education that centers on the attainment of well-defined, measurable outcomes by learners at the summit of their learning experience. In differentiate to standard tutoring plans that emphasize substance transmission and instructor-driven instruction, OBE aims for students not just to learn but also to gain critical abilities, attitudes, and competencies that meet actual-world needs (Rao, 2019; Kapoor et al., 2020).

OBE came into prominence in India especially with regard to higher and specialized education following proposals made by administrative and accreditation agencies like the National Board of Accreditation (NBA) and the All-India Council for

Technical Education (AICTE). Educate institutions were encouraged and required to redesign their curriculum, teaching methods, and assessment techniques to explicitly reflect Program Instructive Goals (PEOs), Program Outcomes (POs), and Course Outcomes (COs). This step was further in accordance with global instruction measures and the objective of India to enhance the global validity of its graduates (Maharishi & Abbas, 2023; Jadhav et al., 2020).

In spite of widespread use, the introduction of OBE in India has been uneven and challenging. A majority of institutions have grappled with insufficient training for faculty members, poor sensitization towards OBE concepts, weak assessment mechanisms, and resistance to change. Additionally, in many instances, the framework has been executed in a complacent or tick-in-the-box mode and not as a pedagogical transformation. These issues call into question the effectiveness of OBE in enhancing educational quality and graduate employment (Gowra & Hegde, 2021; Kumbhar, 2020).

The aim of this paper is to critically analyze ten years of OBE implementation in India, highlighting both the promises and pitfalls. Through the review of policy initiatives, institutional practices, and available research, it examines the major impediments to effective implementation and assesses the actual learning outcomes yielded. By way of this analysis, the study aims to make its contribution to the current debate on educational reform in India and offer insights for policymakers, teachers, and university leaders working towards making OBE more effective and lasting (Mayurappriyan et al., 2021; Rao, 2019).

A. Background

1) Outcome-Based Education (OBE): Principles, Origin, and Global Context

Outcome-Based Education (OBE) is an educational model founded on clearly stated learning outcomes students are to exhibit at the conclusion of a course of study or program. Unlike input-based approaches that focus on what material is covered and the amount of instructional time, OBE focuses on

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observable products of learning—i.e., what students can demonstrate about their knowledge, skills, and values. The key principles of OBE are a keen focus on outcomes, curriculum planning and teaching methods to meet those outcomes, increased learning opportunities for all students, and alignment of assessment with planned results (Kapoor et al., 2020; Rajak & Vidushi, 2024).

The roots of OBE go back to the 1980s and 1990s and the United States and South Africa, where it arose in response to demands for greater accountability, equity, and learner-centered education. It was later taken up by a number of countries which aimed to improve the quality and relevance of education, especially in the context of globalization and shifting labour market demands (Rao, 2019). Internationally, OBE is most widely linked with international accreditation and quality assurance systems, like the Washington Accord for engineering education (I. C. et al., 2025).

2) *India's Adoption of OBE: Policy and Practice*

India's shift to Outcome-Based Education (OBE) began on a large scale in the early 2010s, specifically in technical and professional education. The National Board of Accreditation (NBA) played a key role in spurring the implementation of OBE by higher education institutions as a mandatory requirement for accreditation, as per global standards. Higher education institutions were prompted to develop and assess Program Outcomes (POs) and Course Outcomes (COs) and also to develop linkages between the outcomes and their teaching, learning, and assessment processes (Bhatia & Dash, 2011; Jadhav et al., 2020).

One such step in this direction was the launch of the National Education Policy (NEP) 2020, which focused on competency-based learning, flexibility, and outcomes-based evaluation at every level of education. The NEP 2020 encourages experiential learning, critical thinking, and all-round development—cornerstones of outcome-based education (OBE) (Anonymous, 2015; Mahrishi & Abbas, 2023). Higher education has seen more formal efforts towards embracing OBE but primary and secondary education is also making significant progress towards this with the likes of the National Curriculum Framework (NCF) 2023 and the outcome-based report cards implemented by the Central Board of Secondary Education (CBSE) and other school boards (Rani, 2020; Mayurappriyan et al., 2021).

3) *Rationale for the 2015–2025 Review Period*

2015–2025 is a landmark decade in the development of OBE in India. In 2015, the adoption of OBE started to pick up speed, especially in engineering education and business studies, with regulatory institutions applying pressure on institutions to implement outcome-based models if they were to retain or gain accreditation (I. C. et al., 2025; Kapoor et al., 2020). Various capacity-building initiatives, curriculum reform, and quality assurance reform have been initiated since then to support the implementation of OBE (Bhat et al., 2022).

This decade time span also permits pre- and post-NEP 2020 developments to be studied, giving a complete picture of how national policy has affected implementation at systemic and

institutional levels. With 2025 nearing, it provides a suitable point in time to evaluate the long-term effectiveness of these reforms, to recognize long-standing problems, and to draw lessons for the future of outcome-based practice in Indian education (Rao, 2019; Mayurappriyan et al., 2021).

B. *Purpose of the Study*

This paper aims to critically analyse the use of Outcome-Based Education (OBE) system in the higher education sector in India during the last decade (2015–2025). and since OBE has now emerged as the core of academic quality assurance and accreditation, especially in areas of technical and professional learning, the study under consideration will gain perspective on how colleges and universities have been interacting with its principles and practices.

The particular goals of the research are:

1. To investigate how OBE is used in Indian institutions of higher learning particularly in the reorientation of curriculums, composition of outcomes, evaluation scheme and reforms prompted by accreditation.
2. In order to examine the barriers to successful implementation such as faculty preparedness, administrative support, constraints on resources, differences in the interpretation process and dissimilarity between policy and practice.
3. To determine the results of the educational outcome attained such as the learning improvement and acquisition of skills of the students, employability as well as in their correspondence to international and countrywide academic requirements.
4. Through an overview of the last ten years of developments, this paper aims at examining the efficiency and influence of OBE as it was becoming a determinant of quality and accountability in Indian colleges and universities, and discover practical information on how to reinforce its application in the future.

C. *Research Questions*

The major research the major research questions that will inform this research work are the following:

1. Which are the key initiatives that were made to bring OBE to Indian higher education?
2. What have been the obstacles of implementation of OBE to the institutions, educators and students?
3. What quantifiable results have been recorded and how that all relates to OBE goals?

These questions are meant to show a systematic basis of the status of an analysis of both the advance, as well as the ceiling of the OBE according to the Indian college education.

II. LITERATURE REVIEW

Studies of Outcome-Based Education (OBE) in India and outside have covered various dimensions such as faculty readiness, industry–academic collaborations, pedagogic congruence, student support, and accreditation reforms. Studies indicate that although the faculty members are familiar with the concepts of OBE models like Course Outcomes (COs) and

Program Outcomes (POs), difficulties remain in mapping these into quantifiable measures and useful assessment rubrics. Practices institutional, like industry partnerships and Bloom's Taxonomy integration, have shown a positive influence on the performance and employability of students, whereas cross-national comparisons signal discrepancies in teaching practices and curriculum alignment. In addition, gap analysis and remedial programs as interventions have proved useful in addressing underperforming learners, and accreditation reforms spearheaded by the NBA show an increasing interest in sustainability and global benchmarking. Even after these developments, much of the literature is institution-specific and fragmented and hence not easily able to capture national-level patterns. For this reason, the following table presents a comparative overview of institutional and policy-level studies on OBE implementation.

TABLE I
INSTITUTIONAL AND POLICY PERSPECTIVES ON OUTCOME-BASED
EDUCATION: A COMPARATIVE LITERATURE REVIEW

Source	Institution	Focus Area	Key Findings	Limitations
Rao (2020)	Indian engineering institutions	Faculty awareness & training	Faculty familiar with OBE concepts (COs, POs, NBA), but difficulty in measurable indicators & assessment	Limited application of competencies in practice
Akram et al. (2015)	Indian engineering colleges (with industry partners)	Industry-academia linkages	Collaborations with industry (e.g., Reliance Jio, Texas Instruments) improved attainment of POs in ethics, lifelong learning, and sustainability	Case-specific; not generalizable
Sarma, Das, & Baruah (2020)	Assam Don Bosco University (India)	Pedagogy & assessment	Integration of Bloom's Taxonomy with OBE improved measurable student performance	Single-institution focus
So'aib et al. (2025)	Malaysia (Chemical Engg.)	Cross-country comparative	Despite embedding OBE, inconsistent teaching practices & weak industry involvement hinder adoption	Context-specific; challenges may differ in India
Yusof et al. (2019)	MCA & Accounting programs (Malaysia)	Student support mechanisms	Gap analysis & remedial actions helped underperforming learners; strengthened OBE effectiveness	Postgraduate/discipline-specific
National Board	National Accreditation	Accreditation frameworks	Updated SAR guidelines emphasize	Broad definitions

of Accreditation (2024)	Board (India)		sustainability, adaptability & global benchmarking	create ambiguity
Jadhav et al. (2020)	Rajarambapu Institute of Technology (India)	Institutional readiness & impact	OBE concept is penetrating curricula; positive impact noted, but training gaps remain	Survey limited to readiness; needs deeper longitudinal data
Singaravelu & Thirumoorthy (2021)	Teacher educators in Tamil Nadu	Awareness among educators	Above-average awareness of OBE among teacher educators	Limited to one state; lacks comparative multi-state perspective
Present Study (2025)	India (National-level synthesis)	Multi-dimensional review	Critically compares institutional experiences and policy-level reforms across a decade of OBE practice	Addresses the research gap: prior studies were fragmented, institution-specific, or discipline-bound, lacking a holistic national-level synthesis

The term paper by Mahrishi, M., & Abbas, A. (2023) explores the degree of understanding and execution of OBE hones among designing staff in India. Based on a overview conducted after a workforce advancement program, the ponder uncovers a noteworthy level of mindfulness around OBE concepts such as course results, program results, and the accreditation prepare administered by the National Board of Accreditation (NBA). The comes about demonstrate that most respondents are recognizable with the NBA accreditation handle, graduate traits, and the pyramidal structure of OBE. Be that as it may, the study also distinguishes crevices within the understanding of more nuanced perspectives just like the part of competencies and markers in characterizing program results. The consideration of NEP-2020 points of view gives knowledge into later instructive changes impacting the arrangement of program results and instructive goals. Generally, the discoveries emphasize the require for ceaseless workforce preparing to bridge existing information crevices and guarantee compelling OBE execution.

Gowra, P. S., & Hegde, R. (2021) presents how industry-college cooperation has been transformative in achieving successful implementation of Outcome-Based Education (OBE). The research at BMS College of Engineering, Bangalore, reveals how Memorandums of Understanding with industries like Reliance Jio, Texas Instruments, Stellapps, and others facilitated curriculum planning, real-world projects, industry-driven course instruction, and faculty development. These collaborations resulted in tangible increases in Program Outcomes (POs) achievement, especially higher-order POs like societal and environmental awareness, ethics, communication,

and lifelong learning. In addition, it reveals how these partnerships created a high research culture, increased student placements, and drove curriculum innovations toward including practical, ethical, and soft-skills development toward industry-ready professionals.

Kapoor, K. C., Tirkey, Z., Roy, T. S., Paulraj, I. J. M., Chanda, R., B. A. C., & Sarkar, R. (2020, September) examine how mixing standards-based educating with outcome-driven appraisal can improve learning in higher instruction. Conducted at Assam Wear Bosco College, the consider cantered on UG and PG understudies within the Instruction Division over the Spring and Harvest time semesters of 2019. By adjusting educating hones with Bloom's Scientific classification, teachers made organized learning modules bolstered by developmental tests and focused on learning results. The ponder found a solid connect between inner and end-semester scores, recommending the viability of this strategy in boosting scholarly execution. Eventually, the investigate advocates for embracing this dual-approach demonstrate more broadly, adjusting with national instructive changes to convey more important and quantifiable learning encounters.

Yusof, R., Othman, N., Norwani, N. M., Ahmad, N. L., & Jalil, N. A. (2017) investigates how successfully Malaysian open colleges have connected OBE principles design down, clarity of center, tall desires, and extended opportunity within their bookkeeping degree programs. Through an adjusted Course Encounter Survey (CEQ), the creators accumulated experiences from understudies on how well their scholastic ventures reflected these standards. The comes about uncovered that in spite of the fact that the foundational OBE concepts are recognized and to some degree implanted in course plan and conveyance, their usage remains direct. Key challenges incorporate irregularities in instructing strategies, holes in appraisal arrangement, and constrained integration of industry input. The think about underscores the pressing require for clearer educational modules mapping, made strides educating methodologies, and improved collaboration with industry partners to prepare graduates with both specialized bookkeeping information and fundamental delicate aptitudes for the workforce.

Rajak, A., Shrivastava, A. K., & Shrivastava, D. P. (2019, September) explores how Outcome-Based Instruction (OBE) can be superior custom fitted to back underperforming understudies in specialized instruction, particularly inside a postgraduate MCA program. The consider characterizes clear course results (COs) and measures understudy execution through inside evaluations to decide whether learning objectives are accomplished. For outcomes that fall short, a gap analysis is performed to uncover the underlying causes, followed by corrective actions such as extra assignments and remedial classes. By focusing on targeted instructional strategies and continuous performance tracking, the study demonstrates that structured intervention can significantly enhance learning outcomes for weaker students. This approach not only improves individual attainment but also strengthens the overall efficacy of OBE systems.

I. C., N. S., & B. S. (2025) provides a comprehensive analysis

of the evolution in program outcomes mandated by India's National Board of Accreditation (NBA). The study is conducted in two phases: the first compares the 2016 and 2024 versions of the Self-Assessment Report (SAR) by aligning program outcomes with the Revised Bloom's Taxonomy (RBT) levels; the second phase maps the 2024 outcomes with newly introduced Knowledge and Attitude (WK) profiles. The 2024 version emphasizes points like sustainability, differences, and adaptability, demonstrating a positive development, agreeing to the inquire about. The end of the particular "Environment and Sustainability" result, in any case, raises questions over how clearly natural duty is characterized. The think about cautions that in spite of the fact that maintainability components are presently included into other results, their scattered nearness might compromise focused on learning. In spite of the fact that the 2024 SAR is seen as a dynamic system that complies with worldwide guidelines and prepares designing graduates for challenging, socially cognizant positions, it should be ceaselessly surveyed to maintain principal standards like natural obligation.

III. METHODOLOGY

This study follows a mixed-methods research design, which combines both qualitative and quantitative forms to have a detailed picture of the implementation of the Outcome-Based Education (OBE) in higher education in India between 2015 and 2025. The qualitative analysis was conducted through a methodical base of academic sources, policies and case studies at institutions. The academic databases containing peer-reviewed articles and research papers published over the recent past between 2015 and 2024 include from reputed sources. These were some of the empirical studies that looked at numerous facets of OBE implementation which included faculty preparedness, evaluation, and institutional issues in the engineering, management, and technical institutes alongside colleges in India.

Moreover, a number of important policy and regulatory materials were explored in order to frame the national scenario under which OBE was implemented in the country. These included the National Board of Accreditation (NBA) manuals and annual reports containing the OBE accreditation requirements and efficacy of related colleges and universities, guidelines published by the All India Council of Technical Education (AICTE) on the subject of curriculum transformation, and the National Education Policy (NEP) 2020, documenting the emphasis on competency-based education and outcome orientation as the mandatory focal points of the higher education reform in India. To supplement them, the case studies and quality assurance reports of various colleges and universities with the developed OBE programs were reviewed which offered the grounded view into the issues of curriculum design, faculty training, and assessment alignment.

On the quantitative level, academic performance results of the students (pass rates, completion of course/navigation, programs outcome), where available, were captured through locating institutional yearly reports and accreditation documents. The effectiveness of OBE-aligned education in terms of fulfilling the needs of the labor market was also

assessed using the college placement rates and employer response reports to see the placement and employability rates in the labor market. These quantitative data were discussed with the use of a descriptive analysis in order to detect trends and to measure educational outcomes. Triangulation of findings was possible due to the inclusion of qualitative and quantitative data, which increased the validity of conclusions on the effectiveness of OBE and issues that need to be considered when implementing OBE. Nonetheless, the research was limited in the availability of homogeneous quantitative data in various Faculties and variations of standards on reporting. Also, the use of secondary sources can narrow down the collection of the complete range of the institutional experience in the system of higher education in India.

TABLE II
SUMMARY OF REVIEWED LITERATURE, POLICY DOCUMENTS, AND DATA SOURCES

Category	Source Type	No. of Documents Reviewed	Documents	Purpose/Focus
Academic Literature	Peer-reviewed journal articles	325	-	Empirical studies on OBE implementation challenges, assessment, and outcomes in Indian colleges
Policy Documents	Government and regulatory reports	6	National Education Policy (NEP) 2020; NBA Accreditation Manuals; AICTE Guidelines	Frameworks and standards guiding OBE adoption, curriculum reform, and accreditation criteria
Institutional Case Studies	College/university reports	28	Quality assurance reports from selected engineering and management colleges	Detailed insights into institutional OBE practices, faculty training, and student assessment
Quantitative Data	Institutional data sources	52	Academic performance records, placement reports from accredited institutions	Measurement of student outcomes, graduation rates, employability statistics
Accreditation Reports	NBA, NAAC reports	10	Annual accreditation reports submitted by colleges	Evaluation of OBE compliance and quality assurance mechanisms
Conference Proceedings	Proceedings of education conferences	5	Papers presented at national conferences	Emerging trends and innovations in OBE application

engineering education reform in Indian higher education

IV. ANALYTICAL FRAMEWORK

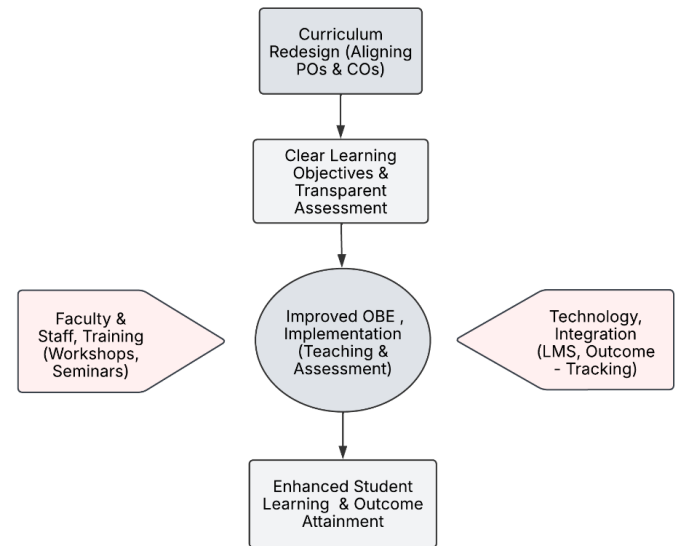


Fig. 1. Analytical Framework for Evaluating OBE Educational Outcomes

The analytical model of the proposed research is based on the assessment of the policy and efficacy of the Outcome-Based Education (OBE) in Indian higher education with the aid of four significant educational outcomes indicators, which are Graduation Rates, Employability, Skills Development, and Accreditation Success. The combination of these indicators allows gaining a multi-dimensional picture of the level of success of OBE reforms in terms of their transfer to real academic and professional results.

A. Outcome-Based Education (Central Concept)

The main principle of the framework is Outcome-Based Education (OBE) or the approach to education associated with the strong focus on learning outcomes that are specific and match curriculum design, teaching, and assessment practices. The paradigm interprets OBE as the engine that impacts on the practices and attainments in institutions.

B. Graduation Rates

Graduation rates are used to capture the percentage of students who get to successfully complete their degree programs within a stipulated duration. Being one of the essential academic outputs, this indicator reflects the efficiency of the OBE as the measure of the continuation of student learning and retention. An increase in the graduation rates indicates that outcome-based teaching and evaluation have enabled learners to attain minimum vital skills that they need to complete the program demands.

C. Employability

Employability determines the extent to which graduates conform to the expectations of labor market, which is the main objective of a competency-based approach of OBE. This

indicator is assessed by the records of placements and employer surveys and the surveys indicating the ability of graduates to receive pertinent jobs. The OBE also aims at enhancing the employability of graduates by ensuring that the needs of the industry are considered in curriculum design, as well as, placing more focus on real-life skills, thus ensuring that there is a direct relationship between employability and educational relevance and success.

D. Skills Development

The various skills developed in this process include technical skills relating to the discipline and general skills referred to as soft skills including communication, teambuilding, and problem-solving. that indicator is measurements evaluated throughout course/program outcome, practical projects, internship and continuous assessment devices. It places much emphasis on the contribution of OBE to holistic development of students beyond mere theoretical knowledge, where the students graduate with set skills which are essential to lifelong learning and professional flexibility.

E. Accreditation Success

Accreditation success is an indicator of the quality assurance mechanism that is associated with the implementation of OBE at an institutional level. Organization like the National Board of Accreditation (NBA) assesses how well an institution has put OBE principles in its curriculum, teaching and assessment. The attainment and continuance of accreditation are indications of the devotion of an establishment towards gradual change and conformance to nationwide determinations of quality that further support the systemic effects of OBE.

Adopting such indicators allows the analytical framework to adopt a comprehensive perspective through which the research analyses the process as well as impact of OBE on the Indian higher education system. Such a multidimensional method would allow not only assessing the outcomes at a student level but also institutional preparedness and the strength of system-wide quality assurance and can provide insights into the OBE achievements and potential spheres of further development.

V. IMPLEMENTATION OF OBE IN INDIA

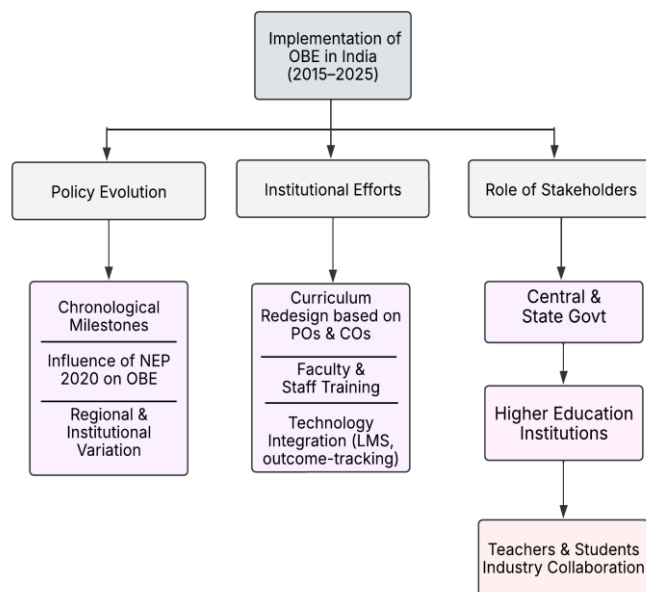


Fig. 2. Implementation of OBE in India

The process of Outcome-Based Education (OBE) (shows in Fig 2) in India during 2015-2025 can be explained through three interlocking axes: policy making, institutional action, and stakeholder engagement. Policy-wise, the decade witnessed major milestones starting with directives from bodies like the AICTE and NBA, which prompted institutions—particularly technical ones—to embrace outcome-based models for accreditation. The policy tipping point arrived with the publication of the National Education Policy (NEP) 2020, which advocated learner-centered competency-based education and openly endorsed OBE principles. Regional and institutional variations, however, continued to prevail, with advanced rates of adoption being seen in more resource-rich states and autonomous institutions.

Institutionally, universities and colleges implemented various steps in implementing OBE. One of the most fundamental steps was redesigning the curriculum to bring Program Outcomes (POs) and Course Outcomes (COs) in line with national agendas and industry needs. Employees and faculty members were trained in embracing new pedagogies and evaluation methods with the help of workshops and development programs. Technology also had a significant role to play, with institutions using Learning Management Systems (LMS) and outcome-monitoring tools more and more to support teaching and measure learning better.

The different stakeholders played a crucial role in bringing about the transition to OBE. The central and state governments offered regulatory, financial, and implementation support, while the institutions of higher learning were the key champions of change. The teachers were the ones who developed and taught outcome-based content, while the students were more actively engaged through goal-oriented, participatory learning methods. Industry participation also assisted in aligning the academic curricula with industry skills to make the graduates

job-ready. These three pillars as a whole depict how OBE in India developed as a systemic reform, backed by concerted efforts of policy, practice, and partnerships.

VI. KEY CHALLENGES IN IMPLEMENTING OUTCOME-BASED EDUCATION (OBE) IN INDIAN HIGHER EDUCATION

From a critical review of peer-reviewed journals, institutional documents, policy briefs, and the outcome-evaluated implementation models of various Indian higher education institutions, some of the key challenges in practice and implementation of Outcome-Based Education (OBE) from 2015 to 2025 were revealed. The challenges reveal extensive heterogeneity, conditioned by geographical location, institution type, and field of study, thus revealing systemic and operational constraints impacting the quality and effectiveness of OBE implementation.

Structural issues have been a central area of focus, especially the lack of curriculum consistency across states and universities, resulting in inconsistencies in learning outcomes and assessment requirements. There is also overall incompatibility between national policy goals—such as those outlined in NEP 2020—and the way they are implemented at the institutional level, where there is generally a lack of clear operational commands.

In education, the majority of institutions of learning still experience challenges regarding preparedness of the faculty and resistance to change from traditional lecture-based structures to outcome-based teaching strategies. Furthermore, the absence of robust and contextually sound assessment techniques inhibits the quality of knowing whether the desired learning outcomes have indeed been achieved.

Insufficient resources and infrastructure worsen these issues. Technological inequalities—especially in rural or state-run schools—restrict the use of digital tools like Learning Management Systems (LMS) and results-monitoring tools that are crucial for OBE. Faculty development processes and administrative support systems in most instances are either lacking or inequitably applied.

Finally, attitudinal and cultural barriers remain to impair OBE's success. Centuries-old teacher-centered culture of Indian schooling stands in contrast to learner-centered, adaptive, and dynamic model offered by OBE. Moreover, students and parents are far more concerned with marks and exam performance than with observable skills and outcomes, so there is hardly any buy-in and enthusiasm for the new education model. These results imply that while policy and institutional change is important, successful and fair implementation of OBE in India necessitates continuous structural change, capacity development, and changing educational culture.

VII. EDUCATIONAL OUTCOMES AND IMPACT ASSESSMENT

A. Quantitative Outcomes

Government data reflects a mixed, yet generally positive trend in institutions implementing Outcome-Based Education (OBE). According to the All-India Survey on Higher Education (AISHE), the Gross Enrollment Ratio (GER) in higher

education improved from 24.5% in 2015–16 to 28.4% in 2021–22 (Ministry of Education, 2023). However, employability continues to be a concern, with only about 45% of graduates considered to be job-ready (Mercer & Mettl, 2023). Interestingly, technical institutions that adopted OBE and obtained NBA Tier-1 accreditation reported a 28% increase in employability (IPSR Solutions, 2025). Furthermore, graduation rates in OBE-oriented engineering and professional colleges were reported to be 8–15% higher than those in non-OBE institutions, though this varied by university (Divakaran, 2025).

While comprehensive data on research output remains limited, the National Education Policy (NEP) 2020 emphasizes integrating research into undergraduate education and promotes research-focused reforms. One notable initiative is the National Institutional Ranking Framework (NIRF), whose participating institutions are projected to grow from 2,426 in 2016 to 6,517 over the next eight years, indicating a push toward a more research-driven and academically vibrant university system (Government of India, 2020).

B. Qualitative Impact

Case studies from NBA-accredited institutions such as Jain University and UIT Bengaluru illustrate the effective implementation of OBE, particularly in outcome mapping, continuous feedback loops, and data-driven interventions (Divakaran, 2025). Faculty input enabled clearer and more achievable teaching objectives, while students benefited from greater transparency and relevance in their learning outcomes. However, institutions with limited resources faced significant challenges, including insufficient faculty training and the continued reliance on traditional exam-based assessments, even when OBE frameworks were nominally adopted.

C. Accreditation and Quality Assurance

The National Board of Accreditation (NBA) has played a crucial role in promoting the adoption of OBE. Its accreditation process requires institutions to report on outcome achievements and demonstrate continuous improvement. Since the implementation of OBE and related reforms in 2015, over 40% of engineering programs have gained accreditation. Currently, NBA has accredited 1,213 technical programs, while the National Assessment and Accreditation Council (NAAC) has accredited 820 universities and 15,501 colleges (NBA, 2025; NAAC, 2025). Institutions that implemented OBE with well-defined tracking mechanisms generally performed better during reaccreditation processes, while those lacking systematic monitoring struggled to meet quality benchmarks.

TABLE III
KEY INDICATORS OF OUTCOME-BASED EDUCATION (OBE) IMPACT IN INDIAN HIGHER EDUCATION

Metric	Value	Source
GER (2015–16 → 2021–22)	24.5% → 28.4%	Ministry of Education (2023)
Employability (2023, technical jobs)	~45%	Mercer & Mettl (2023)
Employability (2023, overall)	51.25%	Government of India (2024a)
Employability (2024, overall)	42.6%	Mercer & Mettl (2025)

NBA Tier 1 OBE Employability Increase	+28%	IPSR Solutions (2025)
Graduation Rate Increase (OBE vs Non)	+8–15%	Divakaran (2025); IPSR Solutions (2025)

The table presents a condensed picture of important indicators showing the effect of Outcome-Based Education (OBE) and accreditation initiatives in Indian higher education. Impressively, the Gross Enrollment Ratio (GER) increased from 24.5% in 2015–16 to 28.4% in 2021–22, representing enhanced access to higher education in India (Ministry of Education, 2024). Even though this improvement has been achieved, employability is still a concern: just around 42.6% to 51.25% of graduates are job-ready (Mercer & Mettl, 2025; Government of India, 2024). Yet, technical institutions accredited as NBA Tier 1 and with the implementation of OBE have achieved a 28% improvement in employability, indicating how outcome-based education can be aligned with industry needs (IPSR Solutions, 2025).

Graduation levels have also increased: OBE-centered engineering and professional colleges have an 8–15% greater rate of completion than those without OBE (IPSR Solutions, 2025). From a research point of view, NEP 2020 seeks to increase coverage in the National Institutional Ranking Framework (NIRF) from 2,426 institutions in 2016 to 6,517 in eight years (Government of India, 2020). In terms of accreditation, the National Board of Accreditation (NBA) has accredited 1,213 technical courses, and the National Assessment and Accreditation Council (NAAC) has accredited 820 universities and 15,501 colleges, highlighting the vast scale quality assurance transformations brought about since 2015 (Government of India, 2025).

Overall, the evidence reflects quantifiable gains in enrollment, employability, and accreditation resulting from OBE introduction, combined with qualitative improvement in learning relevance and clarity. However, there remains considerable variation in impact as a result of variations in institutional capacity, faculty preparedness, and resources available—showing potential for further improvement.

Collective government statistics emphasize that OBE has led to the moderate gains in enrollment, employment and accreditation as a the outcome. Both quantitative increases and unevenness are encouraged by qualitative signs of increased weight in learning clarity and relevance to industry requirements. Nevertheless, there is a lot of inconsistency because of the unequal institutional capability, variable faculty readiness, and shortage of resources, which are to be dealt with to achieve the full potential of OBE in higher education in India.

VIII. DISCUSSION AND RECOMMENDATIONS

This research establishes that in the case of India, the application of Outcome-Based Education (OBE) between the year 2015 and 2025 has been successful to moderate level, especially when there is strong leadership of the institutions, NBA accreditation, and Institutions industry collaboration.

There were improvements in graduation, workability, and clarity of curriculum particularly in colleges of technical and professional schools. Nevertheless, the non-uniformity in the curriculum, lack of training of faculty, structural inadequacies, and the poor awareness of stakeholders still derail its ample success.

The Indian case helps the world to understand OBE in that this type of reform should be locally adapted. It also points at the aspect of system-wide back-up, cultural transformation of teaching and adjustive governance.

In order to resolve these concerns, we suggest reinforcing monitoring and evaluation of policies, as well as promote pedagogical innovation. Institutional capacity-building of faculty, enhanced access to educational technology, and the enhanced support structure are the musts at the institutional level. Future research can use longitudinal research on the results of learning and comparative studies of the school and higher education segments of the population in India to develop an OBE approach that is scalable and wholesome.

CONCLUSION

This study has presented a complete review of a decade (2015–2025) of Outcome-Based Education (OBE) implementation in India by systematically examining the methodological and institutional practices adopted across higher education institutions. The review demonstrates that despite conceptualization of OBE in accreditation-based reforms, especially in the NBA —its practical execution remains uneven across regions and institutions.

From the methodological and analytical perspectives, the study states that the majority of institutions are based on the use of structured outcome mapping, continuous assessment methods, and performance indicators that are based on graduate attributes. However, the analytical frameworks often lacked standardization, leading to variability in measuring and interpreting learning outcomes. This inconsistency has limited the comparability and scalability of OBE practices in different nations.

The analysis of OBE implementation in India demonstrates that institutions with stronger governance, faculty training systems, and digital infrastructure have shown more effective adoption. These institutions reported improved curriculum alignment, enhanced student engagement, and better documentation practices. However, the broader landscape indicates partial adoption, with many institutions treating OBE as a compliance requirement rather than a pedagogical transformation.

The study identifies several key challenges that continue to delay effective implementation of OBE. These include insufficient faculty preparedness, resistance to pedagogical change, lack of institutional autonomy, insufficient technological support, and disparities in resource availability. Additionally, the administrative burden associated with outcome mapping and assessment processes has often led to superficial implementation rather than meaningful engagement.

Despite these challenges, the evaluation of educational outcomes and impact suggests that OBE has contributed

positively were implemented rigorously. Notable improvements include higher graduate employability, better alignment with industry expectations, and enhanced accountability in teaching–learning processes. However, the impact remains inconsistent due to variations in institutional capacity and commitment. These emphasize the need for a systemic and coordinated approach to strengthen OBE in India. For higher education institutions, continuous faculty development, investment in digital assessment tools, and fostering a culture of outcome-oriented learning are essential. For accreditation bodies, there is a need to standardize evaluation frameworks while allowing contextual flexibility. For policymakers, sustained policy support, funding mechanisms, and integration of OBE principles with national education initiatives are critical to ensuring long-term success.

In conclusion, while OBE has demonstrated significant potential as a transformative educational model in India over the past decade, its success depends on moving beyond compliance-driven adoption toward genuine pedagogical reform. Future research should focus on longitudinal impact studies, discipline-specific implementation models, and the role of emerging technologies—such as learning analytics and artificial intelligence—in enhancing outcome assessment. A collaborative effort among institutions, regulators, and policymakers will be essential to fully realize the promise of OBE in advancing the quality and global competitiveness of Indian higher education.

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