

Bridging the Skill Gap: A Conceptual Study on Strengthening Industry-Academia Collaboration in Indian Higher Education

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Abstract The growing disconnect between academic programs and industry requirements has emerged as a significant challenge in Indian higher education. This study explores the fundamental reasons behind the industry-academia divide and offers a strategic framework to improve collaboration between educational institutions and industry partners. Rooted in principles of experiential learning and aligned with recent reforms in educational policy, the study presents a structured model aimed at bridging the existing skill gap. Key components of the framework include the development of industry-relevant curriculum through co-creation, enhanced internship and apprenticeship opportunities, active partnerships between faculty and industry and the incorporation of soft skills training within academic courses. The suggested approach seeks to improve graduate employability, boost workforce readiness and ensure that academic outcomes are more closely aligned with the changing demands of the job market.

Keywords: Industry-academia gap, employability, higher education, internships, curriculum design.

1. Introduction

The rapid transformation of the global economy driven by technological innovation, digital disruption and evolving business models has significantly heightened the demand for a workforce equipped with adaptive, practical and industry-relevant skills (World Economic Forum, 2020). However, India's higher education system, particularly in the management and technical domains, continues to face challenges in aligning academic programs with the dynamic requirements of the industry (Agarwal & Chakraborty, 2021). This misalignment has resulted in a persistent skill gap, where graduates possess academic qualifications but often lack the critical competencies, experiential learning and professional readiness expected in real-world settings (FICCI-NASSCOM & EY, 2017).

The objective of this conceptual study is to investigate the underlying causes of this industry-academia disconnect and to propose a structured framework for fostering stronger collaboration between higher education institutions and industry stakeholders. The study aims to identify and recommend structural reforms, pedagogical innovations, and policy-level interventions that can effectively bridge the skill gap, enhance graduate employability, and bolster national competitiveness in the global knowledge economy (National Education Policy [NEP], 2020; Kapoor, 2022).

2. Literature Review

Extensive academic literature has emphasized the widening gap between academic training and industry requirements in India and globally.

Kapoor (2023), Kapoor emphasized the urgency for higher education institutions in India to co-create curricula with industry stakeholders, citing rapid technological changes and evolving market needs. The study found that institutions that engaged in continuous curriculum revisions and offered industry-led certification programs reported better placement outcomes and higher student satisfaction.

OECD (2022), In its global report, the OECD highlighted a critical mismatch between graduate skills and labor market requirements, particularly in emerging economies like India. It recommended competency-based learning models, digital skill integration, and increased industry internships as key reforms to address this gap.

All India Council for Technical Education [AICTE] (2021), AICTE's National Employability Enhancement Mission (NEEM) recognized that a large number of engineering and management graduates are not job-ready. The report urged institutions to adopt outcome-based education and to integrate soft skills, emotional intelligence, and communication training alongside core academic modules.

National Education Policy (NEP, 2020), The NEP 2020 marked a paradigm shift in Indian education policy, advocating for vocational education, holistic learning, and a multidisciplinary approach. It specifically promoted stronger industry-academia partnerships, flexible curricula, and internship opportunities as mechanisms to increase employability.

World Economic Forum (2020), The *Future of Jobs Report* by WEF projected a widening global skills gap by 2025, urging educational systems to prioritize critical thinking, problem-solving, and adaptability. The report encouraged real-world learning models that mirror workplace dynamics, such as project-based learning and simulations.

Andrews & Higson (2008), argue that while graduates possess adequate theoretical knowledge, they often fall short in applying this knowledge in practical business contexts. This misalignment is particularly evident in management and technical education, where the speed of technological advancement outpaces curricular updates.

Knight & Yorke (2004), Knight and Yorke laid the groundwork for the employability agenda by suggesting that higher education must focus not only on content delivery but also on developing transferable skills. They advocated embedding employability into the curriculum through reflection, autonomy, and applied learning methods.

Kolb (1984), Kolb's Experiential Learning Theory has remained foundational in supporting hands-on, experience-based education. His model posits that knowledge is constructed through transformative experiences, reinforcing the need for real-world learning environments such as internships and industry projects.

Etzkowitz & Leydesdorff (2000), The Triple Helix Model introduced by Etzkowitz and Leydesdorff framed innovation as a collaborative effort between academia, industry, and government. This model continues to be widely cited in the context of educational reform and policy-making, especially for fostering industry-integrated education.

The literature thus forms a clear consensus: practical exposure, co-designed curricula, and continuous dialogue between academia and industry are key to resolving the employability crisis.

3. Conceptual Background

The conceptual foundation of this study is rooted in three interrelated theoretical perspectives. Kolb's Experiential Learning Theory (1984) emphasizes that effective learning occurs through a cyclical process involving concrete experience, reflective observation, abstract conceptualization, and active experimentation. This model underscores the value of internships, live projects, and industry engagement in academic settings, as they allow learners to apply theoretical knowledge in real-world contexts. Complementing this, employability frameworks such as the USEM model (Understanding, Skills, Efficacy beliefs, and Metacognition) stress the importance of integrating cognitive abilities, self-efficacy and lifelong learning into higher education to ensure graduates are equipped to enter and thrive in dynamic labor markets (Yorke & Knight, 2004). Furthermore, the Triple Helix Model proposed by Etzkowitz and Leydesdorff (2000) highlights the synergistic relationship among universities, industry and government in driving innovation and educational transformation. Together, these frameworks offer a robust foundation for designing collaborative, practice-oriented and industry-aligned educational strategies aimed at enhancing graduate employability and bridging the industry-academia gap.

4. Research Methodology

This study adopts a **conceptual research design**, aiming to explore the underlying causes of the industry-academia skill gap in India and propose a strategic framework to bridge this divide. Unlike empirical research that involves primary data collection, this study is based on the systematic review, synthesis and critical analysis of existing academic literature, policy documents and theoretical models relevant to employability, curriculum design and industry-academic collaboration.

4.1 Research Design

A qualitative, exploratory, and conceptual approach is employed to construct a theoretical understanding of the skill gap and propose actionable solutions. The study integrates both **descriptive** and **analytical** perspectives to interpret trends and best practices in the alignment of education with industry needs.

4.2 Data Sources

The research relies on **secondary data**, collected from:

- Peer-reviewed academic journals (e.g., *Journal of Education and Work*, *Indian Journal of Higher Education*)
- Government policy documents (e.g., NEP 2020, AICTE guidelines)
- Industry reports (e.g., World Economic Forum, FICCI-NASSCOM, OECD)
- Foundational theories (e.g., Kolb's Experiential Learning Theory, Triple Helix Model)

Documents published between **2000 and 2023** were prioritized to ensure both foundational understanding and current relevance. Google Scholar, JSTOR, Scopus and official government portals were used to source literature.

4.3 Theoretical Frameworks

The analysis is grounded in multiple theoretical models, including:

- **Kolb's Experiential Learning Theory (1984)** – to support the argument for learning through real-world exposure.
- **Triple Helix Model by Etzkowitz & Leydesdorff (2000)** – to frame the role of government, academia and industry in educational reform.

- **Knight & Yorke's (2004) Employability Model** – to highlight curriculum-integrated skill development.

4.4 Method of Analysis

A **narrative literature review** method was employed to:

- Identify recurring themes such as skill mismatches, curricular lag and limited industry engagement.
- Compare international and Indian contexts.
- Synthesize best practices and policy interventions suggested by scholars and policymakers.

The findings were then thematically categorized to develop a **proposed strategic framework** for enhancing industry-academia collaboration.

Limitations

This study adopts a qualitative conceptual research approach, relying on the synthesis of secondary data from scholarly articles, policy documents, and theoretical models. Unlike empirical studies, conceptual research focuses on interpreting existing literature to construct new frameworks or enhance understanding of complex problems.

As a conceptual study, the research does not involve empirical validation or stakeholder interviews. Future studies can expand on this model using mixed-methods research or action-based participatory studies involving academic institutions and industry partners.

The conceptual framework developed in this paper is a result of logical reasoning, critical synthesis, and cross-referencing of multi-disciplinary sources to address the research objective. The study does not involve primary data collection and therefore does not employ statistical or experimental methodologies.

5. Key Issues in Industry-Academia Disconnect

5.1 Outdated Curriculum Academic syllabi often lag behind industry standards, with minimal revisions or integration of current trends such as AI, data analytics, sustainability, or digital marketing. This leads to graduates lacking practical and technological readiness.

5.2 Lack of Practical Exposure Many academic programs emphasize theoretical knowledge with limited opportunities for experiential learning. Absence of internships, hands-on training, and real-time projects contributes to the skill mismatch.

5.3 Limited Faculty-Industry Interface Faculty members often have limited industry exposure, restricting their ability to teach industry-relevant skills or update curricula effectively. Guest lectures and industrial visits are occasional rather than systematic.

5.4 Soft Skills Deficit Employers frequently report deficits in communication, teamwork, problem-solving, and adaptability among graduates. These soft skills are critical for workplace success but are rarely part of formal academic assessment.

5.5 Fragmented Policy Implementation Despite progressive policy initiatives like NEP 2020, the implementation at institutional levels remains fragmented, lacking consistency and scalability.

6. Recommendations/ Proposed Model Based on the insights gathered from existing literature and conceptual models, a comprehensive framework is proposed to bridge the industry-academia gap:

6.1 Collaborative Curriculum Design Industry experts should be actively involved in designing and periodically updating course content to reflect real-time market needs. Advisory boards can guide institutions in aligning academic objectives with industry trends.

6.2 Embedded Internships and Live Projects Structured internships, apprenticeships, and live projects should be mandatory within academic programs. These experiences should be evaluated for academic credit and integrated into learning outcomes.

6.3 Faculty Development and Exchange Regular faculty training, industrial sabbaticals, and collaboration with corporate mentors can enhance teaching effectiveness and content relevance.

6.4 Skill Development Modules Curricula should embed soft skills training communication, critical thinking, teamwork, and leadership as core competencies alongside technical knowledge.

6.5 Technology-Enabled Learning Leveraging digital tools such as MOOCs, simulations and virtual internships can expand access to industry-relevant training beyond geographical and institutional constraints.

7. Policy and Institutional Implications

To implement the proposed framework effectively, policy-level and institutional interventions are essential:

- Regulatory bodies like AICTE and UGC must mandate industry participation in curriculum development.
- Institutions should be incentivized for collaboration through accreditation scores or funding support.
- National-level platforms can facilitate partnerships, internships, and knowledge-sharing across academia and industry.
- Implementation of NEP 2020 provisions should be localized with clear KPIs and monitoring systems.

8. Conclusion

The persistent gap between academic training and industry requirements continues to pose a major challenge to the employability of graduates in India. As technological advancements reshape workforce demands, educational institutions must evolve beyond theoretical instruction to incorporate real-world skills, practical exposure, and industry-relevant learning models. This conceptual study, grounded in established educational theories and recent policy reforms, underscores the need for co-designed curricula, integrated internships, faculty-industry engagement, and soft skills development. By adopting a collaborative framework supported by the principles of experiential learning and the Triple Helix model - academic institutions can not only

enhance the employability of their graduates but also contribute to national economic competitiveness. Future research and policy should now focus on empirical validation of these frameworks and fostering sustainable partnerships among academia, industry and government.

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