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Skilling India's Workforce for the Future: A Study of Higher Education, Employability, and Industry Alignment

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Abstract: *The global landscape of management education is undergoing a paradigm shift. Traditional MBA programs - once considered gold standards for preparing future business leaders—are now facing significant scrutiny for their ability to stay relevant amid rapid technological change, evolving industry demands, and the need for more dynamic leadership capabilities (Zeidan &Bishnoi, 2020). With the rise of Industry 4.0, digital transformation, and sustainable innovation, there is a growing need for educational ecosystems that are agile, practice-oriented, and deeply integrated with industry realities (Esangbedo et al., 2024). India's current approach to skill development is comprehensive, encompassing both the skilling of new entrants into the labor market and the up-skilling and reskilling of the existing workforce to meet evolving industry benchmarks. The National Skill Development Mission has set an ambitious target of skilling 403 million individuals by 2022. As the fastest-growing service economy, with services contributing approximately 61% to national GDP, India is witnessing rapid expansion in sectors such as Information Technology–Business Process Management (IT-BPM), healthcare, tourism, and emerging technologies. However, despite a robust demand for labor both domestically and internationally, a significant gap persists in the employability of Indian youth. Notably, this gap is prevalent not only among the uneducated and untrained, but also among educated individuals, whose skills often fall short of industry requirements. This study explores the evolving landscape of India's higher education system in the context of labor market dynamics, skill demands, and the employability index across high-growth sectors. The study highlights the strategic value of embedding structured, long-term partnerships between industry and academia to foster innovation, skill alignment, and graduate employability. These insights provide actionable recommendations for business schools, policy-makers, and corporate stakeholders aiming to co-create impactful management education ecosystems. By analysing the education profiles of jobseekers and existing skill gaps, the paper proposes strategic interventions to enhance workforce readiness. The findings aim to inform policy and institutional frameworks that can better integrate education and skills development, ensuring alignment with national and global economic needs.*

Keywords: Skill Development, Employability, Workforce Reskilling, Ordinal Logistic Regression

I. INTRODUCTION

In India's knowledge-driven economy, higher education serves as a critical engine for both individual advancement and national development. Institutions such as the University of Mumbai, with its vast network of affiliated colleges, represent a significant proportion of the country's undergraduate and postgraduate population. Yet, there is a growing concern that despite formal academic credentials, a substantial segment of these graduates are not adequately prepared for the job market—a situation widely described as the employability skills gap**.** Recent studies indicate that this gap is not merely a reflection of limited job opportunities but stems largely from a mismatch between academic training and industry requirements (Paranjape, 2007). Employers consistently report that graduates lack soft skills like

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communication, teamwork, adaptability, and problem-solving abilities—competencies that are increasingly critical in today's dynamic and tech-driven work environments (Ponde & Jain, 2019; Unni, 2016). Mumbai University students, particularly from non-professional streams, face these deficits acutely, due to curriculum rigidity, inadequate faculty training, and minimal industry exposure (Khare, 2020).

Furthermore, the India Skills Report (2021) found that only **45.9%** of Indian graduates were considered employable, a statistic that has remained stagnant over recent years despite numerous reforms. In Mumbai specifically, regional studies have shown that students from affiliated colleges—especially in arts and commerce streams—are less likely to receive institutional support in developing industry-relevant competencies (Neroorkar & Gopinath, 2020; Kale & Nihalani, 2020). There is limited engagement between academia and industry, and most skill development initiatives are add-ons rather than integrated components of the formal curriculum (Jacob & Rathod, 2021).

This paper aims to investigate the underlying challenges in enhancing the quality of higher education in the Mumbai University system, specifically from the lens of graduate employability. It examines systemic bottlenecks such as outdated syllabi, limited internship opportunities, lack of career services, and poor feedback loops between employers and educators (Bhowmik et al., 2024). Drawing upon current research and policy discussions, it proposes a redefinition of "quality" in higher education—one that centres employability as a key metric alongside academic achievement. The goal is to contribute to a more inclusive, skills-oriented framework that ensures Mumbai's graduates are not just degree holders, but career-ready professionals.

II. PROBLEM STATEMENT

Despite increasing enrolment and graduation rates in India's higher education sector, the employability of graduates remains critically low, particularly among students from general degree colleges affiliated with Mumbai University. While academic qualifications may be achieved, industry stakeholders consistently report a substantial gap between graduate competencies and market requirements (Ponde & Jain, 2019; Kale & Nihalani, 2020). This disparity is especially concerning given Mumbai's status as India's financial capital and a hub for diverse employment opportunities.

The issue is not limited to technical proficiency but includes an alarming deficiency in essential employability skills such as communication, teamwork, problem-solving, adaptability, and digital literacy—skills that are increasingly becoming prerequisites for success in both traditional and emerging sectors (Unni, 2016; Jacob & Rathod, 2021). Furthermore, Mumbai University's affiliated colleges, which often face infrastructural and pedagogical constraints, struggle to update their curricula and teaching methodologies in alignment with current industry trends (Khare, 2020).

Although national and state-level initiatives such as the **National Education Policy (NEP) 2020** emphasize the integration of skill development within higher education, the implementation at the ground level in colleges remains fragmented and inconsistent. There is also a lack of institutional mechanisms to facilitate sustained industry-academia interaction, monitor employability outcomes, or embed experiential learning within mainstream academic programs (Neroorkar & Gopinath, 2020).

This growing disconnect has serious implications for the socio-economic mobility of graduates, institutional credibility, and national productivity. Addressing this issue requires a critical examination of how "quality" is defined and delivered in higher education, with a focus on aligning educational practices with employability benchmarks. This study seeks to analyze these challenges through the lens of students, faculty, and employers associated with Mumbai University-affiliated colleges.

Objectives

- **To examine the current understanding and definition of "quality" in higher education** among stakeholders (students, faculty, and employers) in Mumbai University-affiliated colleges.
- **To assess the employability levels of graduates** from these colleges with respect to both domain knowledge and essential soft skills.
- **To identify the key skill gaps** that prevent graduates from transitioning successfully into the job market.

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- **To analyze the effectiveness of existing curriculum frameworks and pedagogical practices** in developing employability skills within affiliated institutions.

Hypothesis

H_0 (Null Hypothesis): There is no significant relationship between the perceived quality of higher education and the employability skills of graduates from Mumbai University-affiliated colleges.

H_{01} (Alternative Hypothesis): There is a significant relationship between the perceived quality of higher education and the employability skills of graduates from Mumbai University-affiliated colleges.

III. LITERATURE REVIEW

The employability of graduates has emerged as a central concern in higher education discourse across India. While the Gross Enrollment Ratio (GER) in tertiary education has increased substantially, the challenge of aligning educational outcomes with labor market expectations remains unresolved (Khare, 2020). The gap between what students learn and what employers need—particularly in soft skills, problem-solving, and digital literacy—has prompted a critical revaluation of what constitutes *quality* in higher education.

1. Defining Employability in Higher Education

Employability is no longer viewed solely as the ability to secure a job, but rather as the possession of a set of transferable skills, attitudes, and knowledge that enable lifelong career development. Knight and Yorke (2003) emphasize that employability involves both subject-specific knowledge and core skills such as communication, teamwork, and adaptability. In the Indian context, this broader definition is essential, especially given the rapid technological and socio-economic transformations that demand agile and multi-skilled graduates (Jacob & Rathod, 2021).

2. The Indian Skills Gap and Graduate Readiness

Several national-level reports, including the *India Skills Report (2021)*, have shown that fewer than 50% of Indian graduates are considered employable. Unni (2016) found that Indian higher education tends to prioritize academic content over practical skill-building, contributing to the unemployability crisis. Specifically in Maharashtra, Kale and Nihalani (2020) observed that students from general degree colleges lack structured exposure to employability-enhancing activities like internships, mentorship, or skill labs.

3. Challenges in Mumbai University-Affiliated Colleges

Mumbai University, with over 700 affiliated colleges, reflects many of the systemic issues plaguing India's higher education system. Paranjape (2007), in a case study on the University of Mumbai, reported that institutional fragmentation, bureaucratic rigidity, and curriculum obsolescence contribute significantly to low employability outcomes. More recent studies suggest that affiliated colleges often suffer from insufficient faculty training and limited engagement with employers or industry mentors (Neroorkar & Gopinath, 2020).

4. Curriculum Rigidities and Assessment Gaps

The outdated curriculum and exam-centric teaching models prevalent in many affiliated colleges hinder the integration of practical and skill-based learning (Ponde & Jain, 2019). Bhowmik et al. (2024) argue that unless employability skills are embedded into the curriculum as core learning outcomes, students will continue to graduate with qualifications that are theoretically rich but practically hollow.

5. Industry Expectations and Mismatched Outputs

Employers frequently report that graduates lack workplace readiness, especially in soft skills like communication, creativity, and independent thinking (Khare, 2020). Studies by the World Bank (Blom & Saeki, 2011) show that the Indian education system often fails to instill job-specific competencies due to poor alignment with industry needs. In

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Mumbai, despite proximity to major industrial hubs, colleges rarely facilitate consistent engagement with industry professionals through guest lectures, projects, or placements.

6. Skill Development Initiatives and Policy Reforms

Although the **National Education Policy (NEP) 2020** emphasizes skill development, vocational training, and holistic assessment, implementation remains uneven. Chowhan et al. (2019) argue that national policies must be localized to account for institutional disparities and regional job markets. For instance, Mumbai's unique industry profile—finance, media, logistics—requires tailored skill training, which most affiliated colleges are ill-equipped to deliver.

7. Student Perceptions and Aspirational Disconnect

Students themselves recognize the limitations of their education. In surveys across Mumbai colleges, students reported feeling unprepared for job interviews, digital tasks, and collaborative work environments (Kale & Nihalani, 2020). Their aspirations for employment often clash with their actual readiness, creating dissatisfaction and underemployment.

IV. METHODOLOGY

4.1 Research Design

This study adopts a quantitative, cross-sectional survey design to investigate the relationship between perceived quality of higher education and the employability skills of students enrolled in Mumbai University-affiliated colleges. The approach is explanatory in nature, aiming to test hypotheses and determine the strength and direction of associations between educational quality and employability outcomes.

4.2 Population and Sampling

The population targeted for this study comprises final-year undergraduate and postgraduate students from various streams (Arts, Commerce, Science, Management, and Technology) in colleges affiliated with the University of Mumbai. A convenience sampling technique was used to collect responses from 100 participants, ensuring representation across different disciplines and institutions within the affiliation network.

4.3 Data Collection Instrument

A structured questionnaire was designed based on the objectives of the study. The questionnaire included the following sections:

Demographics
Perceived Quality of Education (Likert-scale items)
Employability Skills Assessment (self-reported proficiency on communication, problem-solving, digital literacy, teamwork, etc.)
Curriculum Relevance and Institutional Support
Open-ended suggestions
All items were either **5-point Likert scale-based** or **binary (Yes/No)** for clarity and quantifiability.

4.4 Variables

Variable Type	Variable Name	Scale
Dependent	Employability Level	Ordinal (1–5)
Independent	Perceived Quality of Education	Ordinal (1–5)
Independent	Communication Skill	Ordinal (1–5)

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Variable Type	Variable Name	Scale
Independent	Problem-Solving Skill	Ordinal (1–5)
Independent	Teamwork Skill	Ordinal (1–5)
Independent	Digital Skill	Ordinal (1–5)

4.5 Data Analysis Techniques

Data were cleaned, coded, and analyzed using **Python (pandas and stats models libraries)**. Descriptive statistics were computed to understand sample characteristics and skill levels. To examine the relationship between quality of education and employability:

Ordinal Logistic Regression (Proportional Odds Model) was employed using the Ordered Model class in stats models.

The dependent variable was "Employability Level" (1 = very low, 5 = very high).

Independent variables included "Perceived Quality of Education" and the four key skill domains.

This model is appropriate given the **ordinal nature** of the dependent variable and the objective of assessing how increases in perceived quality and skills influence the odds of higher employability levels.

4.6 Validity and Reliability

To ensure **content validity**, the questionnaire was developed based on a review of relevant literature and validated through expert feedback from faculty in education and management. **Internal consistency** of the employability skill items was assessed using **Cronbach's Alpha**, which exceeded the acceptable threshold ($\alpha > 0.70$).

V. RESULTS & DISCUSSION

Variable	Coefficient	95% CI Lower	95% CI Upper	p-value
Perceived_Quality_of_Education	5.355	1.36	9.349	0.009
Communication Skill	3.78	0.966	6.594	0.008
Problem_Solving_Skill	5.689	1.694	9.684	0.005
Teamwork Skill	3.705	0.603	6.806	0.019
Digital Skill	1.55	-0.082	3.183	0.063
02/03 (Threshold)	53.26	21.417	85.104	0.001
03/04 (Threshold)	2.797	2.211	3.383	0
04/05 (Threshold)	2.968	2.365	3.571	0

The ordinal logistic regression model was employed to examine the influence of perceived quality of education and core employability skills on students' employability levels, measured on an ordinal scale from 1 (very low) to 5 (very high). The model demonstrated strong explanatory power, with a **Pseudo R^2 of 0.910**, indicating that 91% of the variation in employability levels can be accounted for by the predictors included in the model.

5.1 Key Findings

Predictor	Coefficient (β)	Significance	Interpretation
Perceived Quality of Education	**5.355***	$p < 0.01$	A one-unit increase in perceived education quality significantly increases the odds of being in a higher employability level.
Problem-Solving Skill	**5.689***	$p < 0.01$	A strong predictor, indicating that students with higher problem-solving abilities are more likely to be

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Predictor	Coefficient (β)	Significance	Interpretation
			employable.
Communication Skill	**3.780***	$p < 0.01$	Effective communication skills significantly improve the likelihood of higher employability.
Teamwork Skill	**3.705**	$p < 0.05$	Teamwork also has a positive effect, though slightly lower than communication.
Digital Skill	**1.550**	$p < 0.1$	While still positively associated, the effect of digital skill is relatively weaker and marginally significant.

5.2 Interpretation

The model supports the central hypothesis that **perceived quality of education is a significant determinant of employability** among students from Mumbai University-affiliated colleges. A high coefficient ($\beta = 5.355$) and strong statistical significance ($p < 0.01$) indicate that students who rate their educational quality higher are substantially more likely to belong to the upper employability categories.

Among the employability skill variables, **problem-solving skills** emerged as the strongest predictor ($\beta = 5.689$), followed closely by **communication skills** ($\beta = 3.780$) and **teamwork** ($\beta = 3.705$). These results confirm that soft skills are not merely complementary, but **central to employability**, echoing findings from prior studies (Khare, 2020; Ponde & Jain, 2019).

Interestingly, **digital skills**, although positively associated, were the weakest predictor in this model. This suggests that while digital literacy is important, it may not be the decisive factor in employers' hiring decisions in the local context, or perhaps students overestimate their digital competence relative to other skills.

5.3 Implications

Curricular Reforms: The strong influence of perceived quality and problem-solving skills calls for immediate curriculum redesign to embed critical thinking, analytical reasoning, and real-world problem-solving exercises into all programs.

Soft Skills Integration: Institutions must prioritize structured soft skills training—especially in communication and collaboration—as part of core academic delivery.

Faculty Development & Pedagogy: Faculty need targeted training to shift from content delivery to competency-based instruction, enhancing both perceived and real educational quality.

Industry Linkages: Given the moderate impact of digital skills, partnerships with industry to co-design technical upskilling modules may be beneficial.

VI. CONCLUSION

This study explored the complex relationship between perceived quality of higher education and employability skills among students in Mumbai University-affiliated colleges. Employing an ordinal logistic regression model, the findings provide clear empirical evidence that educational quality significantly influences employability outcomes. In particular, students who rated their college education as high quality were substantially more likely to possess employability traits valued by the job market.

The analysis revealed that problem-solving ability, communication skills, and teamwork are the most significant skill-based predictors of employability. These results reinforce the growing consensus in literature and industry reports that soft skills are as critical—if not more so—than technical expertise in determining job readiness. While digital skills also showed a positive association, their relative impact was lower, indicating a need for more targeted interventions in this area.

The broader implication of these findings is that higher education institutions, especially within large affiliating universities like Mumbai University, must reorient their definition of "quality." Academic rigor must be balanced

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with career relevance, and learning outcomes must be reframed to include competency development, not just content mastery.

Curricular innovation, pedagogical reform, faculty development, and structured industry engagement are not optional—they are essential. To bridge the persistent employability gap, stakeholders must move beyond short-term training add-ons and work toward systemic transformation that embeds employability into the very fabric of higher education.

VII. RECOMMENDATIONS

- **Enhancing Industry Collaboration**: Build structured partnerships for live projects apprenticeships, and co-created curricula.
- **Experiential Learning**: Expand internships, case studies, and simulations as integral components of learning.
- **Analytical and Critical Thinking**: Embed business analytics, AI, and data-driven decision making in coursework.
- **Technology-Driven Teaching**: Adopt AI-enabled platforms, smart classrooms, and virtual collaboration tools.
- **Skill-Based Training**: Focus on communication, leadership, adaptability, and problem-solving workshops.
- **Career Guidance:** Strengthen pre-placement training, counseling, and structured mentorship.
- **Entrepreneurial Ecosystems**: Support incubators, accelerators, and student-led ventures.
- **Curriculum Upgradation:** Regularly revise MBA programs to reflect industry and societal trends.
- **Personalized Learning Pathways**: Offer electives aligned with students' career aspirations.
- **Global Exposure:** Develop exchange programs and international collaborations to broaden horizons.

VIII. FUTURE RESEARCH DIRECTIONS

a) **Long-Term Career Trajectories**: Study the evolving impact of MBA education on graduates' professional growth.
b) **Sector-Specific Demands**: Examine variations in employability skills across industries such as finance, IT, and healthcare.
c) **Role of Technology**: Investigate the impact of AI, big data, and automation on MBA curricula.
d) **Global Benchmarking**: Compare Indian MBA programs with international best practices.
e) **Alternative Models:** Evaluate hybrid, online, and competency-based MBA structures.
f) **Policy Reforms**: Explore frameworks for more effective industry–academic linkages.
g) **Soft Skills Research:** Analyze the role of leadership, communication, and empathy in employability.
h) **Sustainability and Ethics**: Study the integration of CSR, ethics, and sustainability into MBA pedagogy.
i) **Diversity and Inclusion**: Assess how MBA programs promote gender equity and workplace diversity.
j) **Employer Feedback:** Conduct systematic studies on employers' satisfaction with MBA graduates' readiness.

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