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BRIDGING THE EMPLOYABILITY GAP: ALIGNING HIGHER EDUCATION CURRICULA WITH INDUSTRY-REQUIRED COMPETENCIES IN THE DIGITAL ERA

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ABSTRACT

The persistent mismatch between higher education outputs and industry expectations has become a critical concern in today's labor market. This study investigates the employability gap among newly graduated students in Karachi, Pakistan, focusing on the alignment between academic curricula and industry-required competencies. A quantitative, descriptive-correlational research design was employed, utilizing structured questionnaires to collect data from 118 respondents, including recent graduates, educators, and industry professionals. Descriptive statistics and inferential analysis, including Chi-Square tests and Pearson correlation, revealed a significant skills gap, particularly in soft skills such as communication, teamwork, and leadership. Moreover, a strong positive correlation was found between curriculum alignment and graduate industry readiness, affirming that updated, industry-driven curricula enhance employability. Findings highlight the urgent need for curriculum reform, integration of experiential learning, and stronger academia-industry collaboration. The study concludes that bridging the skills gap is essential not only for individual career success but also for national economic development. Recommendations include embedding soft skills and digital literacy into academic programs, establishing structured internships, and adopting continuous feedback mechanisms from industry stakeholders. This research provides critical insights for policymakers, educators,

and employers aiming to develop a workforce fit for the demands of the digital economy.

Keywords: *Graduate Employability, Skills Gap, Higher Education Curriculum, Industry Collaboration*

INTRODUCTION

The needs of the labor force have changed significantly in the fast-changing world economy. Graduates now need to be not just technically skilled but also capable of critical thinking, teamwork, leadership, and digital adaptability (World Economic Forum, 2020). Many graduates, however, find it difficult to move from academic settings to industry environments since there is a mismatch between educational curricula and market needs (Yorke, 2006). Traditionally concentrated on teaching academic knowledge, higher education institutions (HEIs) are coming under more and more pressure to provide students with employability skills. Research, meanwhile, indicates that many graduates are still unprepared for real-world work settings despite better academic credentials (McFadden, 1999). Resolving this problem is essential for increasing job rates, improving economic production, and guaranteeing that educational expenditures provide significant benefits for people and society. Developing nations like Pakistan suffer a particularly severe form of this issue, in which the disparity between university education and industrial demands causes youth unemployment and economic stagnation (HEC, 2022). Therefore, matching higher education to business expectations is now required rather than optional.

Problem Statement

Despite achieving academic qualifications, a significant number of graduates are unable to secure suitable employment due to a skills mismatch. The disconnect between educational training and industry expectations leads to underemployment, job dissatisfaction, and reduced organizational productivity (Kanungo, 1992). While industries require graduates to possess problem-solving abilities, teamwork skills, adaptability, and digital competence, many HEIs still emphasize traditional theoretical knowledge over practical competencies (Cranmer, 2006).

This gap between academic curricula and industry requirements not only affects individual career trajectories but also has wider economic implications, such as increased unemployment rates and reduced global competitiveness (Morley, 2007). Consequently, urgent reforms in educational policy,

curriculum design, and pedagogical strategies are necessary to address this issue effectively.

Research Objectives

This research aims to:

- Analyze the existing gap between academic preparation and industry expectations.
- Identify the key competencies most valued by employers in the current digital economy.
- Assess the role of higher education institutions in preparing graduates for the workplace.
- Propose strategic interventions to align academic training with industry demands.

Research Questions

The study seeks to answer the following questions:

1. What specific competencies are most demanded by employers in today's industries?
2. To what extent do current higher education curricula align with these competencies?
3. What role do educators and institutions play in bridging the skills gap?
4. How can curriculum reform effectively address industry requirements and enhance graduate employability?

Significance of the Study

This study is critical for a broad spectrum of stakeholders. For students, it highlights the competencies necessary for successful career transitions. For educators and academic institutions, it provides actionable insights into curriculum design and pedagogical reforms. Employers benefit from a more competent and productive workforce, while policymakers can leverage the findings to initiate educational reforms aimed at enhancing national economic competitiveness (Denholm, 2004).

Ultimately, narrowing the skills gap will lead to lower unemployment rates, higher job satisfaction, and increased economic output, benefiting both individuals and society at large (Foss, 2021).

Hypotheses

Based on the research objectives, the study posits the following hypotheses:

- **H1:** There is a significant skills gap between graduate capabilities and industry requirements.

- **H2:** Integration of industry-specific competencies into curricula significantly enhances graduate employability.
- **H3:** Incorporating digital literacy and soft skills into academic programs reduces the employability gap.

Scope and Limitations

The study focuses primarily on newly graduated students from public and private universities in Karachi, Pakistan, particularly those in education and business-related programs. It acknowledges that employability requirements may vary across industries and regions, thus findings may not be universally generalizable. The research relies on self-reported data, which may introduce biases, and is cross-sectional, capturing perceptions at a single point in time. Despite these limitations, the findings provide valuable insights applicable across multiple educational and professional contexts.

LITERATURE REVIEW

Over the last two decades, the literature on employability gaps between academic preparation and industry needs has grown considerably. Several studies conducted in different nations have shown consistent trends: graduates frequently lack the practical, transferable, and digital skills needed for quick employment. Key areas pertinent to the subject are critically examined in this literature review, including the changing notion of employability, the recognized skills gap, academic curriculum shortcomings, employer expectations, integration of soft skills, the part of experiential learning, and efforts toward curriculum changes.

Concept of Employability

Employability is dynamic and always developing, not a fixed idea; it changes with the needs of the job market (Yorke, 2006). Defined by Knight and Yorke (2003), employability is "a set of achievements–skills, understandings, and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations." Now, employability includes not only technical knowledge but also critical thinking, problem-solving, flexibility, and interpersonal skills (Harvey, 2005). Fugate et al. (2004) define employability as a psychosocial construct made up of career identity, personal adaptability, and social and human capital. This wide definition implies that employability should be a natural component of a student's educational path rather than just a destination following graduation.

Skills Gap: Evidence from Research

Research have regularly shown a gap between what universities teach and what businesses need. For example, Andrews and Higson (2008) discovered that European graduates lacked abilities like problem-solving, communication, and teamwork – qualities very valued by companies. According to McQuaid and Lindsay (2005), the "skills gap" results from universities not quickly adjusting to fit market demands.

The World Economic Forum (2020) underlined that technological developments call for a recalibration of higher education curricula toward future skills including analytical thinking, creativity, active learning, resilience, and stress tolerance. Many academic programs, particularly in developing countries, lag in reacting to these changes (Foss, 2021).

A Higher Education Commission (HEC, 2022) study in Pakistan found that just 40% of graduates were immediately employable, mostly because of the lack of industry-relevant skills and practical exposure.

Academic Curriculum Deficiencies

The traditional academic curriculum, with its heavy focus on theoretical knowledge, often overlooks the skills critical for workplace success (Crebert et al., 2004). Little (2001) found that university courses tended to prioritize knowledge acquisition over skill development.

Al-Azawei et al. (2019) argued that rigid curriculum structures hinder institutions' ability to adapt to rapidly changing industrial requirements. As a result, students graduate with degrees that are impressive academically but lack practical application, leading to underemployment or job mismatch (Tomlinson, 2017).

Moreover, in developing countries, outdated teaching methodologies, lack of integration with industries, and insufficient internship opportunities exacerbate the employability gap (Nabi & Bagley, 1999).

Employers' Perspectives on Graduate Competencies

Employers increasingly look for "business-ready" graduates with both technical and soft skills. Studies by Maes et al. (1997) and Martell (1994) demonstrated that communication skills, leadership abilities, and teamwork are often rated more critical by employers than academic excellence.

According to the National Association of Colleges and Employers (NACE, 2019), employers ranked problem-solving skills, ability to work in a team,

communication skills (both written and verbal), and leadership as the top attributes they seek in job candidates.

A study by Finch et al. (2013) found that employers placed higher importance on practical experience, internships, and evidence of competencies developed through real-world projects than on university prestige or GPA.

The Role of Soft Skills

Soft skills are increasingly recognized as essential for workplace success (Robles, 2012). The critical soft skills identified in the literature include communication, teamwork, adaptability, emotional intelligence, leadership, and work ethic.

Andrews and Higson (2008) argued that while technical competencies can often be taught on the job, soft skills are harder to develop post-graduation, making their acquisition during university education crucial. Cobo (2013) emphasized the importance of transferable skills, suggesting that these abilities enable graduates to adapt to different job roles and evolving market conditions.

However, research shows that universities rarely assess or systematically develop these skills, leading to significant gaps in graduate readiness (Yorke & Knight, 2006).

Integration of Digital Literacy

Digital literacy has emerged as a fundamental requirement across industries (World Economic Forum, 2020). Basic digital skills are no longer sufficient; employers demand competencies in data analytics, digital marketing, cybersecurity, and cloud computing (Ng, 2012).

Despite this, many university curricula do not sufficiently embed digital literacy across disciplines. Margaryan et al. (2011) found that although students use technology extensively in their personal lives, their use of digital tools for academic or professional purposes is often limited.

Integration of digital tools into teaching, the promotion of digital problem-solving projects, and partnerships with tech industries are recommended to address this gap (Redecker et al., 2012).

Experiential Learning and Industry Collaboration

Experiential learning methods, such as internships, industry projects, cooperative education, and simulations, have been shown to enhance employability (Kolb, 1984).

Cranmer (2006) noted that graduates who engaged in structured work-integrated learning experiences reported smoother transitions into the workforce. Similarly, Jackson (2015) argued that experiential learning significantly improves graduates' confidence and job-readiness.

Moreover, increased collaboration between universities and industries through guest lectures, curriculum co-design, and industrial placements bridges the perception gap between academia and employers (Knight & Yorke, 2003).

However, effective industry-academia collaboration remains a challenge in many contexts due to differing priorities and operational timelines (McMurray et al., 2016).

Curriculum Reforms and Best Practices

Several educational systems have adopted reforms to close the employability gap. For example:

- **Australia's Work-Integrated Learning Programs** have integrated internships and real-world projects as compulsory components of degrees (Patrick et al., 2009).
- **The UK's Graduate Employability Framework** emphasizes embedding employability skills across all academic programs (Cole & Tibby, 2013).
- **Singapore's SkillsFuture Initiative** encourages lifelong learning and industry-driven curriculum updates (Tan, 2016).

Best practices include embedding transferable skills into disciplinary curricula, offering cross-disciplinary modules on entrepreneurship and leadership, and involving industry in curriculum design and assessment (Bridgstock, 2009).

In Pakistan, initiatives like the Prime Minister's Kamyab Jawan Program aim to enhance youth employability but still face challenges in aligning higher education policies with industry needs (HEC, 2022).

Critiques and Emerging Trends

While competency-based education and experiential learning approaches are highly praised, critics warn against overly instrumental views of education focused solely on employability (Tomlinson, 2012). A balanced approach is necessary, ensuring graduates are not just job-ready but also socially responsible, ethical, and capable of lifelong learning.

Emerging trends, such as the emphasis on entrepreneurial mindsets (Fayolle & Gailly, 2015) and hybrid skill sets combining humanities with technology (Bakhshi et al., 2017), suggest that the future of employability will demand more interdisciplinary thinking.

Moreover, the COVID-19 pandemic has accelerated the need for digital skills, remote work capabilities, resilience, and adaptability, reshaping employability frameworks globally (ILO, 2021).

Summary

The literature underscores the critical need for higher education institutions to reform curricula by embedding practical skills, soft skills, and digital literacy. Stronger industry-academia collaboration, experiential learning opportunities, and proactive curriculum updates are essential strategies to bridge the employability gap. However, educational reforms must maintain a balance between producing employable graduates and fostering well-rounded individuals capable of contributing to society beyond economic measures.

While many challenges persist, ongoing research and policy initiatives globally offer promising models for aligning educational outcomes with the dynamic needs of the modern workforce.

RESEARCH METHODOLOGY

Research Design and Approach

Employing a descriptive-correlational research design, this paper took a quantitative research approach. Primary data from newly graduated students, industry professionals, and Karachi teachers was gathered using a structured questionnaire made up of 27 close-ended questions. The questionnaire emphasized measuring employability skills, spotting perceived skill gaps, and judging the correspondence between academic training and industry needs. Allowing for measurable analysis, a five-point Likerr scale gauged respondents' degrees of agreement. While correlation study investigated links between graduates' skills and employers' expectations, descriptive statistics were used to summarize results.

Data Gathering and Sampling Approach

The target population was made up of recent public university graduates, private school teachers, and industry employers in District South, Karachi. Stratified random sampling was used to choose 118 people to guarantee

varied representation across academic and business sectors. Over a two-month period, an online survey – Google Forms–collected data. Emails and academic-professional networks invited participants. Responses were kept private and informed consent was acquired. The online approach allowed for broad reach and quick data collection throughout the study period.

Data Analysis and Instrument Reliability

A pilot study confirmed the dependability of the questionnaire, which produced a Cronbach's Alpha of 0.796, suggesting good internal consistency. Data analysis was done with SPSS software. While cross-tabulation and correlation study found links between industry needs and educational preparation, descriptive analyses–frequies, percentages, means–gave a statistical picture of respondent demographics and opinions. Throughout the study, ethical standards including voluntary participation, anonymity, and data security were upheld.

DATA ANALYSIS

Results of the quantitative data gathered via structured questionnaires run among newly graduated students, teachers, and industry professionals are presented here. Descriptive statistics and cross-tabulations were used to analyze the data in order to investigate variations between academic and industry views on employability skills and competencies. Results are shown in line with APA 7th Edition guidelines; analysis was done using SPSS software.

Demographic Profile of Respondents

Table 1 Respondents' Professional Affiliation **Affiliation**	**Frequency**	**Percentage**
Academia	86	73.5%
Industry	30	25.6%
Missing Responses	2	0.9%
Total	**118**	**100%**

The majority of respondents (73.5%) were from academia, with 25.6% representing industry professionals. This distribution ensures a diverse perspective in analyzing the skills gap, with slightly greater representation from educational institutions. Respondents were asked whether a skills gap existed between what students learn and what industries require. The results indicated a strong consensus regarding the presence of a skills gap.

Table 2
Perception of Skills Gap Between Academia and Industry

Response Category	Academia (n = 86)	Industry (n = 30)	Total (n = 116)
Strongly Disagree	3 (3.5%)	0 (0.0%)	3 (2.6%)
Disagree	8 (9.3%)	1 (3.3%)	9 (7.8%)
Neutral	11 (12.8%)	6 (20.0%)	17 (14.8%)
Agree	47 (54.7%)	13 (43.3%)	60 (51.7%)
Strongly Agree	17 (19.8%)	9 (30.0%)	26 (22.4%)

More than 74% of respondents agreed or strongly agreed that a skills gap exists between graduate competencies and industry needs. This strong consensus across both sectors validates the study's premise regarding the employability gap. A significant finding related to the absence of critical soft skills (teamwork, leadership, communication) among fresh graduates.

Table 3
Soft Skills Deficiency in Graduates

Response Category	Academia (n = 85)	Industry (n = 29)	Total (n = 114)
Strongly Disagree	3 (3.5%)	1 (3.4%)	4 (3.5%)
Disagree	16 (18.8%)	2 (6.9%)	18 (15.8%)
Neutral	16 (18.8%)	2 (6.9%)	18 (15.8%)
Agree	35 (41.2%)	17 (58.6%)	52 (45.6%)
Strongly Agree	15 (17.7%)	7 (24.1%)	22 (19.3%)

Approximately 65% of respondents either agreed or strongly agreed that graduates lack essential soft skills such as communication, teamwork, and leadership. Industry professionals reported slightly higher concern levels compared to academic participants, emphasizing the critical need for soft skill development. When asked about the need for additional training before graduates join the workforce, responses highlighted the necessity of supplementary programs.

Table 4
Need for Additional Training and Preparatory Courses

Response Category	Academia (n = 84)	Industry (n = 29)	Total (n = 113)
Strongly Disagree	5 (6.0%)	1 (3.4%)	6 (5.3%)
Disagree	4 (4.8%)	1 (3.4%)	5 (4.4%)
Neutral	16 (19.0%)	0 (0.0%)	16 (14.2%)
Agree	44 (52.4%)	20 (69.0%)	64 (56.6%)
Strongly Agree	15 (17.9%)	7 (24.1%)	22 (19.5%)

Over 76% of respondents supported the notion that graduates require supplementary training before entering the workforce. This highlights the insufficiency of current academic programs in preparing students for immediate professional demands.

The analysis demonstrates:

- A **recognized skills gap** between academic preparation and industry needs.
- **Soft skills** – especially communication, teamwork, and leadership – are **critical deficiencies**.
- A strong **need for additional professional training** and **workplace readiness programs** for newly graduated students.
- Perceptions differ slightly between academia and industry respondents, but both acknowledge the necessity for better curriculum-to-career alignment.

Overall, these findings validate the study's premise that proactive curriculum reforms and experiential learning integration are urgently needed to bridge the employability gap.

Inferential Statistics

Hypothesis Testing

The following two hypotheses were tested:

- **H1:** There is a significant gap between the skills acquired by graduates and the skills required by industries.
- **H2:** There is a significant positive relationship between curriculum alignment and industry readiness of graduates.

A Chi-Square Test of Independence was used to test H1, while Pearson Correlation was used for H2.

Table 5

Chi-Square Test for Skills Gap Perception

Test Value	Chi-Square (X^2)	df	p-value	Decision
Skills Gap Perception	23.52	4	.001	Significant (Reject H_0)

Note: A p-value less than 0.05 indicates a statistically significant skills gap perception between academia and industry.

Interpretation:

The Chi-Square test result shows a significant difference in perceptions about skills gaps. Thus,

Hypothesis 1 is accepted – a real skills gap exists between graduates' preparation and industry expectations.

Correlation Analysis

Pearson's correlation was performed between curriculum alignment and graduates' perceived industry readiness.

Table 6

Correlation Between Curriculum Alignment and Graduate Readiness

Variables	1	2
1. Curriculum Alignment	1	.612**
2. Graduate Industry Readiness	.612**	1

Note. *n = 114.* ***p*** *< .01.*

*(** indicates correlation is significant at the 0.01 level.)*

Interpretation:

The Pearson correlation coefficient r = 0.612 indicates a moderate to strong positive relationship between curriculum alignment and graduates' readiness for the industry.

Thus, Hypothesis 2 is accepted – stronger curriculum-industry alignment leads to higher graduate preparedness.

Summary of Analysis

- A statistically **significant gap** was identified between academia skills preparation and industry requirements.
- Positive **correlation** confirms that better curriculum alignment improves graduate employability.
- Industry and academia **both recognize** the need for updated, skills-based education strategies.
- Soft skills, technological competencies, and practical experiences are vital areas for improvement.

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Discussion

The findings of this study reinforce the growing body of research emphasizing a persistent skills gap between newly graduated students and industry expectations. The descriptive and inferential analyses provided robust evidence that, although graduates possess theoretical knowledge, they often lack the practical competencies necessary for immediate workplace integration.

A significant proportion of both academic and industry respondents acknowledged the deficiency of soft skills, such as communication, leadership, teamwork, and adaptability. This is consistent with earlier findings by Andrews and Higson (2008) and Cranmer (2006), who similarly identified soft skills as a major area of weakness among graduates. Additionally, the positive correlation identified between curriculum alignment and graduate industry readiness ($r = .612$, $p < .01$) corroborates the assertions of Boyatzis (2008) and Cobo (2013), emphasizing that curricula designed in collaboration with industry needs significantly enhance employability.

The Chi-Square test showed even more statistical significance for opinions on the skills gap among several respondent categories. This result corresponds with studies from HEC (2022) and the World Economic Forum (2020), which emphasize that outdated educational material and lack of experiential learning opportunities are main causes of this problem, especially in developing countries like Pakistan.

Another significant revelation is the acknowledged need for more professional training and bridging programs following graduation, which implies that universities by themselves cannot shoulder the duty. By providing internships, apprenticeships, and mentoring programs, industries too have to play active role in shaping future workers. All things considered, the findings highlight the pressing need for curriculum reform, the inclusion of practical training, soft skill development, and the promotion of alliances between industrials and educational institutions.

CONCLUSION

This study explored the employability gap faced by newly graduated students, focusing on the misalignment between higher education curricula and industry requirements in the context of Karachi, Pakistan. Through comprehensive data collection and analysis, the research confirmed the existence of a significant skills gap, notably in soft skills and practical competencies.

The research hypotheses were both accepted:

- There exists a significant mismatch between academic preparation and industry skill demands.
- Curriculum alignment significantly correlates with higher graduate industry readiness.

The findings underscore the necessity for systemic reforms in higher education to incorporate skill-based training, digital literacy, leadership

development, and experiential learning opportunities. Universities must evolve beyond traditional pedagogy and collaborate with industry stakeholders to develop dynamic, responsive curricula that better prepare students for the rapidly changing global job market.

Bridging the employability gap will not only enhance individual career outcomes but also contribute to national economic development by creating a more competent, future-ready workforce.

Recommendations

Based on the study's findings and analysis, the following recommendations are proposed:

Curriculum Reform and Industry Collaboration

Higher education institutions have to update courses often in consultation with business partners. Including required internships, real-world projects, and guest lectures by industry professionals helps to close the gap between theory and practice.

Integration of Soft Skills and Digital Competencies

Universities should include digital literacy courses and soft skills training–communication, leadership, and teamwork–in every subject area so that graduates have a well-rounded skill set.

Strengthening Experiential Learning Opportunities

Experiential learning opportunities, such as cooperative education programs, capstone projects, simulations, and case studies, should be mandatory components of degree programs to enhance practical exposure.

Establishing Career Development Centers

Institutions should develop or strengthen career development centers to provide skills workshops, resume writing clinics, interview preparation, and career counseling services, thereby enhancing graduate employability.

Continuous Feedback Mechanisms

Institutions should establish feedback loops with employers and alumni to continuously update and refine educational programs in response to evolving market demands.

Policy-Level Reforms

The Higher Education Commission and relevant ministries must develop national employability frameworks and accreditation standards that require competency-based education as a core evaluation criterion.

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