International Journal of Creative and Open Research in Engineering and Management
ISSN: 3108-1754 (Online)
Volume 02 Issue 09 September-2026 | Impact Factor: 3.5

A Multidisciplinary Analysis of the Employability Gap: Enhancing Graduate Readiness for the IT Sector

Gurpreet Kaur[1], Dr. Ajay Chaurasia[2]

1 Ph.D. Research Scholar, School of Commerce and Management, Maya Devi University, Dehradun, Uttarakhand

2 Research Supervisor, School of Commerce and Management, Maya Devi University, Dehradun, Uttarakhand

Corresponding Author:

Gurpreet Kaur

Email: sgurpreet6@gmail.com

Abstract: As the rate of technological changes in the Information Technology (IT) industry has rapidly expanded what employers are expecting of new employees, many universities now need their graduating students to develop both disciplinary knowledge AND applied competences to support them in today's job market. New technologies such as Cloud Platforms, Artificial Intelligence, Cybersecurity, Automation and Collaborative Software Practices have created a greater emphasis on applied competence as well as disciplinary knowledge. This research studies the 'Employability Gap' which is the difference between what graduating students think they can do versus what recruiters expect from those graduating students. This study uses a descriptive/analytical approach to explore this issue within the technical education system of Dehradun, Uttarakhand. Data was collected through surveys of 250 final year undergraduate and postgraduate IT students and through surveys of 80 Human Resource Managers, Recruiters, and Talent Acquisition Professionals. There were eight domains used for competency assessment: Technical Preparedness, Problem-Solving and Contextual Reasoning, Professional Communication, Teamwork, Adaptability and Resilience, Professionalism and Work Ethic, Emotional Self-Regulatory Competence, Interview Readiness. Descriptive Statistics and Internal Consistency Testing, Comparative Tests and Multiple Linear Regressions were all analyzed using JASP & GNU PSPP. Findings show significant discrepancies between Student Self-Assessment and Recruiter Expectations with the greatest discrepancy observed in, Adaptability and Resilience, Professional Communication, and Emotional/Self-Regulatory Competency. In addition, the Regression Results showed that students who had both Practical/Project Experience and Soft Skills Integration contributed more to Graduate Readiness than Curriculum Dynamism. This research presents several arguments supporting Employability as a long-term educational outcome rather than just as a one-time Placement Activity. The Study proposes three forms of Coordinated Interventions to address these issues including Curriculum Design, Experiential Learning, Continuous Career Preparation and Stronger University/Industry Engagement.

How to Cite this Article:

Kaur, G. (2026). A Multidisciplinary Analysis of the Employability Gap: Enhancing Graduate Readiness for the IT Sector. International Journal of Creative and Open Research in Engineering and Management, <i>02</i>(9), 1-9. https://doi.org/10.55041/ijcope.v2i9.154

https://doi.org/10.55041/ijcope.v2i9.154

Key Words - Employability gap, IT sector, graduate readiness, HR expectations, industry-academia alignment,

1. INTRODUCTION

1.1 Transformation of Entry-Level Work in the IT Sector

The nature of Entry-Level work in Information Technology has undergone considerable transformation as organizations move away from stand-alone computing environments toward cloud-based, data-driven and increasingly interconnected Digital Systems. As a result, the transition from university to employment is no longer simply a question of whether a graduate can write code or recall technical concepts. Graduates are increasingly expected to apply knowledge in situations where requirements are incomplete, technologies change quickly and solutions must be developed collaboratively.

The shift is particularly visible in software development. Development teams now make extensive use of shared repositories, automated testing, continuous integration and deployment practices, issue-tracking systems and collaborative review processes. These practices change the competency profile of a new employee. A technically sound graduate may still require considerable development if the graduate cannot explain a design decision, respond constructively to review comments, work within an agile team or learn an unfamiliar tool independently. The employability question therefore extends from technical knowledge to the capacity to use knowledge effectively in social and organisational settings.

Table 1. Evolution of entry-level IT work

Historical Paradigm (Task Execution)	Contemporary Paradigm (Systems)
Static syntax & manual coding	AI-assisted development & MLOps
Isolated technical assignments	Cross-functional agile squads
Linear (Waterfall) execution	Dynamic iterative CI/CD pipelines
Knowledge-centric evaluation	Competency & behavioral centered

1.2 Graduate Employability and Higher Education

Graduate employability has gradually transformed from a dualistic perspective on whether a student can secure a first job to a more complex concept of a multidimensional phenomenon. Tomlinson (2017) revises the understanding of employability through graduate capital that involves human, social, cultural, identity, and psychological resources that facilitate labor-market transitions. The notion is particularly relevant to IT graduates since technical knowledge alone does not guarantee a successful entry into the workplace environment.

The concept of "graduate employability" has been theoretically expanded in recent educational and organizational literature. Previously, higher education institutions defined employability through a simplistic and a dualistic measure of whether a student can find a job at the moment of graduation. Contemporary educational researchers argue that such a measure does not account for the ability to sustain a working career and ignores multiple factors of success after graduation (Yorke, 2006).

Modern educational literature increasingly conceptualizes graduate employability as a multifaceted notion that involves acquisition of dynamic 'Graduate Capital.' In particular, according to Tomlinson (2017), Graduate Capital consists of five interrelated dimensions:

Human Capital: Implicit and explicit domain knowledge, technical skills, and cognitive capabilities.

Social Capital: Networks, professional relationships, and institutional connections that facilitate career entry and mobility.

Cultural Capital: Familiarity with corporate norms, organizational language, and professional etiquette.

Identity Capital: An individual's self-concept, professional identity, self-efficacy, and career orientation.

Psychological Capital: Psychological resources such as resilience, adaptability, optimism, and emotional self-regulation required to navigate workplace ambiguity.

When higher education institutions focus exclusively on traditional human capital, specifically theoretical subject mastery evaluated through summative examinations, they neglect the cultural, identity, and psychological capital required to navigate complex corporate environments. Consequently, while degree completion rates remain high, graduate readiness metrics decline.

It is argued that by focusing on traditional human capital, such an approach as prioritizing academic qualifications over other factors ultimately underperforms in terms of graduate employability. The reason for this is that theoretical knowledge and associated skills only constitute a small part of what is generally required to function successfully in the contemporary workplace environment. In other words, the capacity to perform well on exams and assignments is not sufficient in and of itself to secure employment and to sustained career progression. Thus, while higher education organizations train students to achieve high grades, they greatly fail in preparing them for the realities of the working world. These considerations will be used as a framework for discussing the technical and behavioral aspects of graduate employability in this paper.

1.3 The Employer Expectations Paradox

There seems to be a contradiction in the employability discussion. Even when a large number of technically prepared graduates join the workforce, companies nevertheless report having trouble finding applicants who can contribute successfully without requiring costly remedial training. Previous studies conducted in India have revealed significant gaps in both technical and non-technical competencies, as well as employer discontent with the abilities of recently graduating engineers (Blom & Saeki, 2011). Similar disparities between graduate skills and industry expectations in domains like software engineering practice, communication, and teamwork have been found in computer science education research (Radermacher & Walia, 2013).

Exploring the evolution of corporate recruitment methods is necessary to comprehend this conundrum. IT firms ran large, centralized post-hire training institutes in earlier decades. Fresh engineering graduates were regularly onboarded by large enterprise IT businesses for six to twelve months of intensive internal bootcamp of training including domain-specific methodology, software engineering tools, business etiquette, and foundational programming. By absorbing the institutional flaws in university education, these industrial training schools served as an efficient secondary educational buffer.

The contradiction becomes more important when organisations drive with shorter delivery cycles and expect new employees to learn while contributing to active projects. Although organisations continue to provide induction and role-specific training, the assumption of immediate productivity places greater pressure on universities to ensure that graduates understand how technical knowledge is applied. This is a key employability concern of the connection between professional competencies, experiential exposure, and curricula.

1.4 Technical Skills and Behavioural Competencies

Technical competence remains a vital foundation for an IT career. For many entry-level positions, programming, databases, software engineering concepts, algorithms, and systems understanding are still essential. This study does not make the case that technical expertise is replaced by soft skills. Instead, when technical information is acquired without opportunities to practice communication, teamwork, problem-solving in uncertain situations, adaptability, and professional conduct, employability is diminished.

Recruitment processes often require candidates to move between different forms of performance. A candidate may first encounter an online assessment, followed by a coding or technical discussion and then a behavioural or human-resource interview. Each stage requires a somewhat different combination of knowledge, reasoning and communication. The ability to explain a technical solution, justify assumptions, listen to a question and respond constructively under pressure is therefore part of technical employability rather than an unrelated add-on.

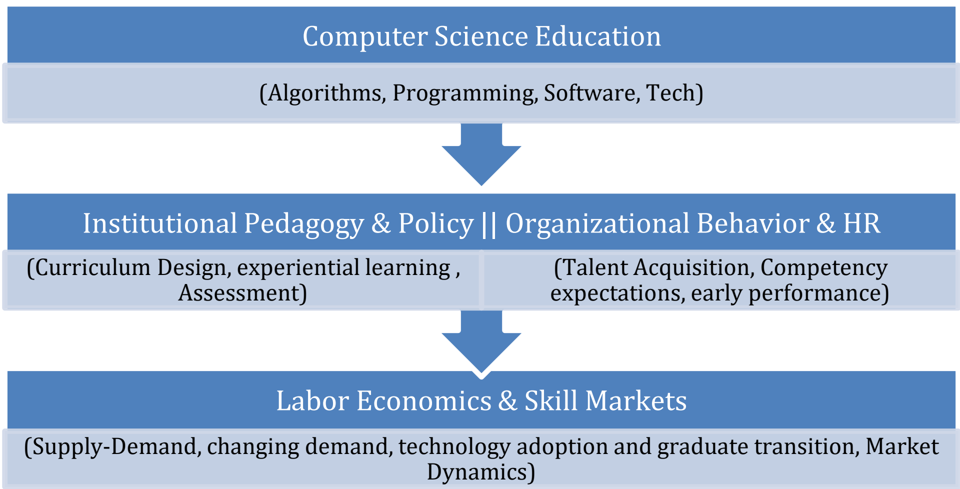
1. Technical and aptitude screening to establish baseline disciplinary competence.
2. Technical or coding assessment to examine applied problem-solving.
3. Technical discussion, design or scenario-based interaction to assess reasoning and explanation.
4. Behavioural and human-resource evaluation to assess communication, teamwork, adaptability and professional judgement.

There is ample evidence that for a substantial majority of candidates who pass an initial screening interview (either automated or by code review), their ability to perform deteriorates significantly in subsequent technical design dialogues. Examples include: frequently being unable to explain how they arrived at specific algorithm design or coding decisions during the interview, demonstrating poor situational and collaborative problem-solving skills, communicating their algorithm design and coding decisions poorly (both verbally and, particularly, in written form), and displaying unacceptable levels of defensiveness when asked to justify or defend their decisions.

1.5 A Multidisciplinary Understanding of the Employability Gap

The gap in getting jobs is not likely to be explained by just one area of study. Computer science education decides what technical skills are taught educational leadership affects how learning is organized and tested, human resource management sets which skillsre important during hiring and performance reviews and the job market shapes what kinds of skills are needed. Combining these views helps look at the gap as a mix of what's taught how learning happens what employers expect and changes in the job market.

Table 2. Multidisciplinary lens used in the study



Table/Figure 2. Multidisciplinary lens used in the study

1.6 Indian Higher Education Context

The higher education system in India has grown a lot. Keeps sending many engineering and computing graduates to the tech industry. At the time how well these graduates get jobs depends a lot on differences in school resources how connected they are to industries how they teach and what opportunities they give for real-life learning. A survey done by the World

Bank in India showed that employers were worried about the skills of engineering graduates, which shows that employability is more than just about what students learn in school (Blom & Saeki 2011).

The National Education Policy 2020 is a policy context because it focuses on learning across different subjects learning by doing a complete way of education being flexible and making stronger links between education and skill development. These ideas create a policy environment where getting a job is seen as something that higher education are responsible for, not just a short training, before being hired (Ministry of Education Government of India 2020).

1.7 Uttarakhand and Dehradun Context

Dehradun offers a setting for studying the issue of employability because the city has become a major centre for higher education in Uttarakhand. It draws students from across the state and nearby areas. Technical institutions in the region provide courses in engineering, information technology and computer applications. This creates a number of graduates ready for campus recruitment. Still access to real-world industry experience varies widely between institutions and among student groups.

Despite an existence in technical education, Dehradun's region presents unique issues in its education system. While a lot of graduates earn their degrees in the field of expertise that employers in the IT industry in and around the country often complain about, they are not able to do the job. The main reason is that most educational institutes are located at a distance from IT hubs like Bengaluru, Hyderabad, Pune, and the National Capital Region. As a result, a student misses out on a lot of opportunities like getting into the corporate environment, attending technical hackathons, internships, and other professional events.

A regional study is important because national data can mask differences at the level. Students in cities may have limited chances to interact with product teams connect with industry mentors build professional networks or work, on real workplace projects. That’s why this study looks closely at Dehradun as a technical education system. It does not treat employability as a single nationwide problem but instead focuses on how local conditions shape job readiness.

1.8 Rationale and Research Focus

The main reason for this research is to link three different perspectives on what higher education can offer. The perspectives on what higher education can offer. The perspectives that are mostly studied in isolation are what higher education can offer, what students think they can do after graduation and what recruiters expect from new IT graduates. The study specifically examines whether the largest readiness differences occur in technical preparation or in the behavioural and professional dimensions that support the application of technical knowledge.

The study attempts to answer four questions: (i) What levels of skill do IT students say they possess in major areas associated with employability? (ii) What level of skill in the same areas do IT recruiters expect from final year graduates? (iii) In which major areas does self-assessment by students diverge most from the expectations of IT recruiters? and (iv) To what extent are curriculum dynamism, practical exposure and soft skills integration related to graduate readiness?

2. NEED OF THE STUDY

2.1 Overemphasis on Technical Instruction

In recent years, technical education institutions have made concerted efforts to expand their programming coursework. Driven by student demand and external pressure, institutions have added courses in modern programming languages (Python, Java, C++), web development frameworks, and specialized electives in Artificial Intelligence, Data Science, and Cybersecurity.

However, there is an unintended consequence of this growth – the disproportionate focus on isolated technical syntax at the expense of professional development. Academic courses tend to relegate coding to a mathematical or algorithmic discipline performed in a vacuum of a single assignment. Students are expected to solve well-defined algorithmic puzzles that specify exactly what should be the input and what the output. Such an approach may be useful for developing basic logical thinking, but it fails to reflect reality of software development in all its complexity (Radermacher & Walia, 2013).

Software development involves working with often ambiguous requirements, negotiating on the business logic of the system, dealing with legacy code, performing refactoring, addressing security and performance concerns, and engaging in extensive discussions with stakeholders. By focusing exclusively on coding as the core part of software development, academic institutions fail to prepare students for the realities of enterprise software development.

The problem arises when competence is demonstrated mainly through predefined academic exercises. Real software work contains incomplete requirements, changing constraints, existing code, quality and security considerations, client needs and interactions with people from different functions. The distance between a controlled classroom problem and an open-ended workplace problem can therefore become a major source of graduate unreadiness.

2.2 Limited Integration of Communication and Workplace Competencies

Communication and interpersonal development are often placed at the periphery of technical education. Where such training exists, it may be delivered through short workshops or stand-alone modules close to placement season. This arrangement creates three problems. First, students may not see the connection between communication and their technical discipline. Second, there is insufficient time for repeated practice and feedback. Third, treating communication as separate from technical work can prevent students from learning discipline-specific forms of communication such as technical documentation, requirement clarification, code review dialogue and project presentations.

- Context: professional communication should be practised through technical tasks rather than taught only through generic exercises.
- Continuity: employability development requires sustained practice across semesters, not a final-semester crash course.
- Assessment: competencies are taken more seriously when they are assessed and linked to authentic academic work.

2.3 Student Self-Perception and Recruiter Evaluation

Another critical challenge in graduate talent pipelines is the cognitive disconnect between how students evaluate their own readiness and how corporate recruiters assess them (Tymon, 2013). Influenced by high academic marks, successful completion of theoretical coursework, and self-directed online coding badges, final-year IT students frequently exhibit overconfidence regarding their career readiness.

This cognitive bias creates severe friction during recruitment processes. Students feel fully prepared for the workplace despite lacking fundamental awareness of industrial standards, while recruiters observe a significant deficit in candidate preparation. Students who consider themselves eligible feel surprised and frustrated when rejected during corporate recruitment. On the other hand, recruiters are irritated by the lack of awareness, realistic assessment, and professionalism of the students applying for the job position. It is vital to recognize and measure the gap in the students' perception of competency in relation to specific areas to identify the needed educational interventions.

A difference between self-rating and external evaluation does not by itself prove poor ability or a psychological bias, but a persistent difference can indicate that students have limited access to accurate feedback about workplace expectations. This makes objective benchmarking and recruiter interaction important elements of career preparation.

2.4 Recruitment Challenges for Fresh IT Graduates

The recruitment process at the entry level often requires candidates to prove a plethora of competencies in a limited amount of time. Thus, the transition from aptitude or technical screening to live problem solving, technical discussion and behavioural examination can expose shortcomings in communication or adaptability, even if one's coding abilities are up to standard. In such cases, organisations must consider if they should concentrate exclusively on interview coaching for the purpose of preparing candidates for the placement, or if they should allow the applicants to get involved with the work-like tasks from day one in order to facilitate a meaningful learning experience.

Table 3. Typical campus recruitment funnel

Stage 1:Aptitude and baseline technical screening
Stage 2: Applied coding and problem-solving
Stage 3: Technical discussion, design and reasoning
Stage 4: Behavioural, HR and situational evaluation

The data provided by the institutional placement cells shows that if a decent percentage of students pass through Stage 1 and Stage 2, a significant number of candidates are lost at Stage 3 and Stage 4. The emerging issues are that the graduates cannot describe their thinking process, get confused during interactive questioning, show signs of anxiety when presented with non-textbook problems, and lack basic professionalism expected from employees. Without proper research and identifying the issues within the evaluation structure, the university administration cannot make the necessary adjustments to the curriculum, training, and placement-related instructions.

3. RESEARCH METHODOLOGY

3.1 Research Design

The research study employs a mixed method of the descriptive and analytical type. In the research, the quantitative part deals with such aspects as students' self-perceptions and recruiters' expectations regarding the competencies that are usually tested in graduates. The qualitative component of the study explores student and recruiter practices that reflect the meaning of such readiness through the interaction process. The design is intended to identify the size and direction of competency differences and to examine whether curriculum-related factors are associated with overall readiness.

- **Quantitative**: Student questionnaire (N = 250), recruiter questionnaire (N = 80), five-point Likert measures.
- **Qualitative**: Recruiter interactions/interviews and focus-group discussion inputs.
- **Integration**: Comparative gap analysis and triangulation of stakeholder perspectives.

3.2 Population and Sampling

The student population comprised final-year students enrolled in undergraduate and postgraduate computing programmes, including B.Tech in Computer Science and Engineering, B.Tech in Information Technology, Master of Computer Applications and M.Sc. Information Technology, across technical institutions in Dehradun. A total of 280 questionnaires were distributed, of which 250 complete and usable responses were retained. Stratified sampling was used to include students from different institutional categories.

The second stakeholder group comprised human resource managers, talent-acquisition professionals, technical leads and interviewers who participate in recruitment of entry-level IT graduates. Purposive and snowball sampling was used to access professionals with relevant recruitment experience. Eighty valid recruiter responses were included in the analysis. The two groups were treated as distinct stakeholder samples, direct student-to-recruiter pairing was not assumed.

Table 3.1. Demographic and academic profile of student respondents (N = 250)

Variable	Category	Percentage
Gender	Male	60.8%
	Female	39.2%
Academic programme	B.Tech (CSE/IT)	72.4%
	MCA / M.Sc. (IT)	27.6%
Institution type	Public / State university	36.0%
	Private university	64.0%
Cumulative CGPA	Above 8.5	20.8%
	7.0 to 8.49	59.2%
	Below 7.0	20.0%

Table 3.2. Profile of IT recruiter respondents (N = 80)

Variable	Category	Percentage
Enterprise sector	IT services and consulting	50.00%
	Software products / SaaS	26.25%
	Technology start-ups / FinTech	23.75%
Professional role	HR / talent acquisition	53.75%
	Technical lead / manager	46.25%
Recruiting experience	More than 10 years	30.00%
	5 to 10 years	50.00%
	Less than 5 years	20.00%

3.3 Data Collection Instruments and Statistical Software

Two parallel instruments were used. The Student Self-Assessment Survey measured perceived competence and awareness of workplace requirements. The Recruiter Graduate Evaluation Survey examined the level of competence expected from entry-level graduates across the same broad domains. Both instruments used a five-point response scale ranging from very low/strongly disagree to very high/strongly agree. The reported instrument development included expert review for content and construct relevance. Internal consistency was assessed using Cronbach’s alpha, with reported coefficients above 0.82 for the study subscales.

JASP and GNU PSPP were used for statistical processing. The use of accessible statistical software supports transparent analysis and makes the analytical procedure reproducible for institutions that may not have access to commercial packages. The software choice itself is not treated as a research finding, it is reported to make the analytical workflow explicit.

3.4 Research Variables and Competency Dimensions

Graduate Employability Rate (GER) was conceptualized in this study as an overarching indication of graduate readiness or entry-level performance and was used as the dependent variable in the regression model. Three pedagogical variables were explored: Curriculum Dynamism (CD), Practical and Project Exposure (PPE), and Soft-Skills Integration (SSI). In addition, eight competency domains were utilized to compare student perceptions to recruiter expectations.

Table 3.3. Core competency dimensions used in the study

Code	Domain	Operational focus
TP	Technical Preparedness	Core programming, database and software-engineering foundations
PSCR	Problem-Solving and Contextual Reasoning	Application of technical reasoning to unfamiliar and business-related situations
CS	Professional Communication	Oral explanation, written documentation, listening and client communication
ITW	Interpersonal Skills and Teamwork	Collaboration, agile interaction, peer coordination and conflict management
AR	Adaptability and Resilience	Learning new tools, responding to change and maintaining performance under pressure
PWE	Professionalism and Work Ethics	Accountability, punctuality, time management and ethical conduct

ESRC	Emotional and Self-Regulation	Self-awareness, emotional control and constructive response to feedback
IRP	Interview Readiness and Presentation	Presentation of technical work, project contribution and situational judgement

3.5 Statistical Analysis and Regression Model

The analytical procedure was conducted in three stages. First, descriptive statistics were generated to summarise the competency profiles. Second, comparative analyses were used to examine the difference between student ratings and recruiter expectations. Third: Multiple linear regression analysis was done to analyze the role of curriculum dynamism, practical/project exposure and soft-skills integration into the equation for graduate-readiness.

The regression model is expressed as:

$$GER_i = \beta_0 + \beta_1 CD_i + \beta_2 PPE_i + \beta_3 SSI_i + \varepsilon_i$$

Here, GER_i denotes the graduate readiness or entry-level performance score for observation i, CD, PPE and SSI represent the predictor scores, β_0 is the intercept, β_1 to β_3 are regression coefficients, and ε_i represents the unexplained component of the model. The reported analysis treats higher values of the predictors as indicating stronger alignment, exposure or integration.

4. RESULTS AND DISCUSSION

4.1 Competency Gap Analysis

The results of comparison show that recruiter expectations in all eight domains of competency outweigh student self-appraisal. Note that a negative value of Δ implies that the average student rating is lower than the average recruiter expectation, and the biggest differences are reported for such competencies as adaptability and resilience, professional communication, and emotional self-regulation.

Table 4.1. Student self-ratings and recruiter expectations (five-point scale)

Competency	Student mean	Recruiter mean	Gap Δ	SD	t-value
Technical Preparedness (TP)	3.92	4.15	-0.23	0.56	-1.98*
Problem-Solving & Context (PSCR)	3.58	4.48	-0.90	0.62	-6.45**
Professional Communication (CS)	3.30	4.62	-1.32	0.70	-9.82**
Teamwork & Agile Collaboration (ITW)	3.48	4.32	-0.84	0.67	-6.04**
Adaptability & Resilience (AR)	3.15	4.52	-1.37	0.79	-10.54**
Professionalism & Ethics (PWE)	3.78	4.28	-0.50	0.58	-3.42**
Emotional & Self-Regulation (ESRC)	3.08	4.38	-1.30	0.73	-9.46**
Interview Readiness (IRP)	3.38	4.22	-0.84	0.68	-6.12**

*Note: Δ = student mean − recruiter mean. * $p < 0.05$, ** $p < 0.01$, as reported in the study output.*

4.2 Interpretation of the Competency Differences

The results point to a pattern of misalignment rather than a uniform weakness across all areas. The relatively small difference in technical preparedness suggests that students and recruiters are closer in their assessment of foundational technical capability. The larger differences in communication, adaptability and emotional self-regulation indicate that the transition problem may be located less in whether students have studied technical subjects and more in whether they can transfer their knowledge into collaborative and uncertain workplace situations.

The difference in professional communication skills is especially important. IT-related work increasingly demands that developers and analysts communicate technical decisions to colleagues, managers, clients plus non-technical stakeholders. The ability to communicate effectively therefore impacts requirements specification, documentation, escalation of problems, code reviews, and overall project coordination. The identified gap would suggest that universities should integrate communication skills into technical specialism tasks rather than teach them as an employability module only.

Adaptability and resilience show the largest difference between what recruiters are looking for and what students believe they possess. This may reflect the gap between the stable environment of education and the need to operate in conditions where one has to quickly adapt to changing priorities, tools, and responsibilities. Exposure to end-of-project reviews, continuous assignment moderation, and ongoing feedback would help students to develop the necessary resilience.

The gap in emotional and self-regulation competencies is similarly substantial. Workplace readiness requires students to accept criticism, manage pressure and adjust behaviour during collaboration. These are developmental capabilities, and they are unlikely to emerge from one-time interview coaching. Repeated peer feedback, collaborative projects and supervised reflection may provide more authentic opportunities for development.

4.3 Regression Results

The regression model was used to assess whether three educational factors were associated with graduate readiness. The reported model explains 67.1 percent of the variance in the dependent outcome ($R^2 = 0.671$, adjusted $R^2 = 0.665$). Practical and project exposure has the strongest standardised coefficient, followed by soft-skills integration and curriculum dynamism.

Table 4.2. Multiple linear regression results for graduate readiness

Predictor	B	β	SE	t
Intercept	0.405	—	0.118	3.43**
Curriculum Dynamism (CD)	0.180	0.18	0.054	3.33**
Practical & Project Exposure (PPE)	0.422	0.43	0.063	6.70**
Soft-Skills Integration (SSI)	0.360	0.37	0.060	6.00**

*Model summary: $R = 0.819$, $R^2 = 0.671$, adjusted $R^2 = 0.665$, $F = 104.20$, $p < 0.001$. ** $p < 0.01$.*

The most influential predictor in the reported model is practical and project exposure ($\beta = 0.43$, $p < 0.01$). The result is consistent with the expectation that employability is enhanced when students gain exposure to practical applications, such as industry projects, internships, collaborative capstones and practice with authentic tools. It bridges the gap between learning activity and work activity.

The second most influential predictor is soft-skills integration ($\beta = 0.37$, $p < 0.01$). The result is consistent with emerging pedagogical approaches that propose communication, teamwork and self-regulation as integral elements of the learning process alongside technical learning, rather than as an external influence. The role of curriculum dynamism is also statistically significant, positively correlated with the outcome ($\beta = 0.18$, $p < 0.01$). It suggests that maintenance of up-to-date teaching materials is desirable but not sufficient to address the employability gap.

Overall the results are consistent with the premise that employability is not achieved through a single training module but is the outcome of a comprehensive educational experience. Updating the academic curriculum is necessary but not sufficient to address the employability gap. Students need multiple opportunities to apply, collaborate, negotiate, communicate and receive feedback throughout their studies.

5. RECOMMENDATIONS AND IMPLICATIONS

5.1 University Administration and Curriculum Designers

- Institutionalize periodic curriculum review with meaningful inputs from industry, alumni and faculty. The goal should be alignment with evolving work practices rather than simply replacing course titles.
- Expand semester-long internships, industry-mentored projects and authentic capstone experiences. Practical experience should be evaluated as part of the academic program wherever possible.
- Embed diagnostic employability assessments at key points in the degree programme to provide students with evidence-based feedback on communication, teamwork, problem-solving and preparedness for entering the workforce.

5.2 Faculty and Departmental Leadership

- Incorporate problem-based and case-based learning that teaches students to function with limited information and justify their choices.
- Design collaborative laboratory work around version control, peer review, technical presentations and team-based execution to embed communication skills within technical work.
- Embed reflection and feedback in assessment design. Students should be asked to explain what they have learned, how their approach has evolved and how they have incorporated feedback from peers or instructors.

5.3 Placement Cells and Career Guidance Units

- Transition from end-of-programme placement coaching to year-round career readiness programming starting before the placement year begins.
- Use realistic multi-stage simulations that include aptitude testing, technical problem solving, technical interviews and behavioural interviews.
- Provide individual feedback rather than selection decisions, helping students understand where they need to develop.

5.4 Technical Students

- Consider collaborative engineering experience as part of technical training. Open-source contributions, group projects and shared repositories can demonstrate teamwork and professional maturity.
- Use external feedback to calibrate self-assessment. Academic marks and course transcripts are valuable indicators of learning but do not reflect workplace readiness.

Table 5.1. Stakeholder implementation matrix

Stakeholder	Strategic action	Expected outcome
University leadership	Periodic industry curriculum review	Greater relevance of course content and learning outcomes
Faculty	Project- and sprint-based learning	More authentic technical and collaborative practice
Placement cells	Continuous diagnostic career readiness	Earlier identification and correction of readiness gaps
Students	Open-source and collaborative experience	Stronger practical, communication and teamwork evidence

6. FUTURE RESEARCH DIRECTIONS

- Longitudinal studies can monitor these cohorts across multiple semesters to assess whether early integration of communication, collaboration and self-regulation leads to demonstrable improvements in employability outcomes.
- Future research could compare different curriculum models, such as traditional technical programmes, competency-based programmes and programmes with sustained industry-mentored learning.
- Research in several institutions in other regional education hubs can ascertain whether the patterns uncovered in Dehradun are local, state level or more general to Indian technical education.
- Future work can explore how industry and universities can collaborate to co-design the competency frameworks and assessment rubrics for entry-level IT recruitment.

7. CONCLUSION

The employability gap among IT graduates cannot be explained simply by a shortage of technical knowledge. The evidence reported in this study indicates a wider alignment problem involving curriculum relevance, practical exposure, student awareness and behavioural competencies. In all eight competency domains studied, recruiter expectations eclipse student self-ratings, most notably for adaptability and resilience, professional communication, and emotional and self-regulation competencies.

Regression modeling confirms that graduate employability outcomes are overwhelmingly shaped by Practical & Project Exposure ($\beta = 0.43$) and integrated Soft-Skills Instruction ($\beta = 0.37$). To retain relevance and fulfill their socio-economic mandate, higher education institutions in Dehradun and similar ecosystems must break away from static, lecture-centric pedagogical approaches. By operationalizing the multi-stakeholder Actionable Implementation Matrix proposed in this study, universities can align their pedagogical offerings with industry expectations, produce career-ready engineering graduates, and catalyze regional economic development. The regression findings lend additional credibility to this integrated approach. Practical and project exposure emerges as the most statistically significant determinant of graduate readiness, followed by soft-skills integration and curricular dynamism. This implies that universities seeking to address employability concerns should look beyond superficial training interventions and embed employability outcomes within the very fabric of their pedagogical frameworks. Through authentic projects, sustained industry engagement, technical communication, collaborative assignments and iterative feedback loops, engineering schools can prepare graduates who are not only technically proficient but also capable of navigating the complexities of the modern workplace.

For the Dehradun technical education ecosystem, this presents an opportunity to reorient its graduate capital strategy. The aim should be to produce graduates who are not only technically competent but also ethically grounded, able to think critically and communicate their technical knowledge effectively, collaborate across disciplines, and demonstrate adaptability in dynamic work environments. This vision is consonant with the emergent understanding of graduate capital and the evolutionary trajectory of higher education policy. The challenge of graduate employability, therefore, cannot be addressed by any single stakeholder in isolation.

ACKNOWLEDGMENT

The authors extend their gratitude to the university administrations, department heads, faculty members, corporate HR professionals, technical recruiters and students who gave their time and expertise to this study. Their contributions were instrumental in informing the stakeholder-level insights that form the basis of this research.

REFERENCES

[1] Tomlinson, M. (2017). Forms of graduate capital and their relationship to graduate employability. Education + Training, 59(4), 338–352. https://doi.org/10.1108/ET-05-2016-0090.

[2] Jackson, D. (2015). Employability skill development in business graduates: An examination of the alignment of academic and workplace learning. Studies in Higher Education, 40(2), 350–367.

[3] Radermacher, A., & Walia, G. (2013). Gaps between industry expectations and the abilities of graduates. Proceedings of the 44th ACM Technical Symposium on Computer Science Education, 145–150. https://doi.org/10.1145/2445196.2445351.

[4] Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. Higher Education Research & Development, 28(1), 31–44.

[5] Blom, A., & Saeki, H. (2011). Employability and skill set of newly graduated engineers in India. World Bank Policy Research Working Paper 5640. World Bank.

[6] Ministry of Education, Government of India. (2020). National Education Policy 2020. Government of India.

[7] Knight, P. T., & Yorke, M. (2004). Learning, curriculum and employability in higher education. RoutledgeFalmer.

[8] Suleman, F. (2018). The employability skills of higher education graduates: Insights into conceptual frameworks and empirical research. Studies in Higher Education, 43(11), 2002–2016.

[9] Mason, G., Williams, G., & Cranmer, S. (2009). Employability skills initiatives in higher education: What effects do they have on graduate labour market outcomes? Higher Education, 57(1), 1–17.

[10] JASP Team. (2023). JASP (Version 0.18) [Computer software]. JASP Team. https://jasp-stats.org/.

[11] Ministry of Human Resource Development. (2020). National Education Policy 2020. MHRD, Government of India.

[12] NASSCOM. (2023). FutureSkills Prime: Reskilling and Upskilling the Indian IT Talent Pool. NASSCOM Sector Skills Council.

[13] Tymon, A. (2013). The student perspective on employability. Studies in Higher Education, 38(6), 841–856. https://doi.org/10.1080/03075079.2011.604408

[14] Clarke, M. (2018). Rethinking graduate employability: The role of capital, agency and context. Journal of Education and Work, 31(7–8), 623–637. https://doi.org/10.1080/13639080.2019.1570112

[15] Thomsen, S. L. (2009). Explaining the Employability Gap of Short-Term and Long-Term Unemployed Persons. Kyklos, 62(3), 448–478. https://doi.org/10.1111/j.1467-6435.2009.00445.x

[16] Agbu, J.-F., Olivier, J., Shadrach, B., & Awadhiya, A. K. (2025). Bridging the Job Skills Gap in India: Assessing Graduate Readiness at Indian Open Universities. Journal of Learning for Development, 12(3), 531–545. https://doi.org/10.56059/jl4d.v12i3.2031