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Enhancing Graduate Employability in the Digital Era: An Analysis of Skill Development Factors

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Abstract: Graduate employability has become a central concern for higher education because a degree alone no longer guarantees a smooth transition into work. Employers increasingly expect graduates to combine disciplinary knowledge with digital competence, communication ability, problem-solving, workplace exposure, and the capacity to manage their own careers. This study examines the relative contribution of these skill-development factors to employability readiness among degree college students in Hyderabad. A cross-sectional, quantitative design is used with a model sample of 120 students drawn across B. Com, BBA, BA, and B.Sc programmes and across all three years of undergraduate study. The study measures digital literacy, communication skills, problem-solving ability, industry exposure, career self-management, and perceived employability readiness using a five-point scale. Descriptive statistics, an independent-samples t-test, Pearson correlation, multiple regression, and one-way ANOVA are used for analysis. The results indicate that students report the strongest average competence in digital literacy and problem-solving, while industry exposure remains the weakest area. Students who have participated in skill or digital training report significantly higher employability readiness than those without such exposure. All five skill factors are positively and significantly associated with employability readiness. In the regression model, the five predictors jointly explain 75.4 percent of the variance in employability readiness, with digital literacy emerging as the strongest predictor, followed by career self-management. A small but statistically significant difference is also observed across years of study, with final-year students recording higher employability readiness than first-year students. The findings support a shift from isolated placement training to a curriculum-integrated employability model that combines digital proficiency, communication practice, problem-based learning, internships, portfolio building, mentoring, and career planning. For colleges in Hyderabad, stronger collaboration with local technology, services, finance, life-sciences, and startup ecosystems can make employability development more continuous, practical, and responsive to changing labour-market expectations.

Keywords: Graduate Employability, Digital Literacy, Skill Development, Degree College Students, Hyderabad, Career Readiness, Higher Education

INTRODUCTION

Background of the Study: The transition from college to employment has become more demanding as organizations redesign jobs around digital systems, data, automation, artificial intelligence, remote collaboration, and faster cycles of learning. In this environment, employability is not simply the possession of a degree or a list of technical abilities. It concerns the capacity to use knowledge in unfamiliar situations, communicate with different stakeholders, solve practical problems, learn new tools, present evidence of competence, and make informed career choices. Yorke [1], therefore describes employability as a set of achievements that improves the likelihood of gaining employment and succeeding in chosen occupations, rather than as employment itself. The distinction matters in India because higher educational participation has expanded at the same time that employers continue to report uneven job readiness. The India Employment Report 2023 notes that educational attainment among young people has risen considerably, but educated youth continue to face labour-market difficulties and skill mismatches. Using 2022 data, the report recorded substantially higher unemployment among graduates than among less educated youth, illustrating that educational expansion and employment absorption do not automatically move together [2]. The issue is therefore not whether higher education is valuable, but how effectively it converts academic learning into usable capability. The skill profile expected from new entrants is also changing. The World Economic Forum's Future of Jobs Report 2023 identifies AI and big data, networks and cybersecurity, and technological literacy among the fastest-growing skills, while also giving high importance to creative thinking, resilience, flexibility, analytical thinking, leadership, and lifelong learning [3]. The implication for undergraduate

education is direct: digital skills and human skills must develop together. A student who knows software but cannot explain an idea, work in a team, evaluate evidence, or adapt to a new role may still face difficulty in recruitment and early career performance. India's National Education Policy 2020 moves in this direction by encouraging multidisciplinary learning, internships, vocational exposure, research participation, technology use, and stronger links between higher education and work [4]. More recent national skilling initiatives have expanded training in AI, data analytics, Internet of Things, drones, semiconductors, and other emerging fields. Ministry of Skill Development and Entrepreneurship reported 53,449 candidates trained or oriented in AI-related roles under PMKVY 4.0, with 25,466 certified, showing that digital skilling has become a policy priority rather than a peripheral activity.

Hyderabad as a Relevant Employability Context

Hyderabad offers a particularly useful setting for examining graduate employability because its labour market combines large technology firms, global capability centres, financial and professional services, pharmaceutical and life-sciences companies, startups, education, retail, and a growing platform economy. Telangana's second ICT policy positioned the state as a hub for product development, engineering, and research and development, and set a target of 10 lakh direct IT-sector jobs by 2023 [5]. Earlier official data also show rapid growth in Telangana's IT exports and IT employment, with the state's technology ecosystem concentrated strongly in and around Hyderabad [6]. The India Skills Report 2023 identifies Hyderabad among India's emerging talent centres and reports a national graduate employability rate of 54.81 percent based on the Global Employability Test [7]. For degree college students in Hyderabad, this produces both opportunity and pressure. The city contains employers that need digitally capable graduates, but access to these opportunities depends on more than classroom marks. Students must often demonstrate English communication, spreadsheet and data skills, presentation ability, problem-solving, professional behaviour, internship experience, and awareness of recruitment processes. The local ecosystem therefore makes Hyderabad a strong context for studying which skill-development factors are most closely associated with employability readiness.

Statement of the Problem

Degree colleges have traditionally been judged by examination results, completion rates, and progression to higher study. Employers, however, increasingly evaluate graduates through a different set of signals. Recruitment processes now include online assessments, aptitude tests, group discussions, case analysis, interviews, digital tasks, portfolio evidence, and internships. This creates a gap when students complete academic requirements without enough practice in communication, digital applications, problem-solving, career planning, or workplace behaviour. The problem is not simply a lack of training programmes. Many colleges conduct short workshops before placement season, but such interventions can remain disconnected from the curriculum and may begin too late. Students also differ in access to laptops, paid courses, internships, English-speaking environments, mentors, and professional networks. Consequently, even within the same city and the same educational level, employability readiness may vary substantially. A structured analysis is needed to determine which development factors show the strongest relationship with employability and whether participation in skill training is associated with a measurable difference in readiness.

Scope of the Study

The geographical scope is Hyderabad. The population of interest is undergraduate students enrolled in general degree programmes. The model sample includes B. Com, BBA, BA, and B. Sc students from the first, second, and third years. The study focuses on perceived employability readiness and five skill-development factors. It does not measure actual job placement, salary, employer performance ratings, or long-term career progression. The cross-sectional design captures associations at one point in time and therefore does not establish causality.

Review of Literature

Employability as a Multidimensional Construct: Early employability discussions often emphasized transferable skills, but later research showed that the concept is broader. Yorke [1], argued that employability includes achievements, understandings, and personal attributes that make graduates more likely to gain employment and perform effectively. Fugate et al. [8], introduced a psycho-social view in which employability reflects career identity, adaptability, and forms of social and human capital. This shifted attention from possession of skills to the individual's capacity to use and renew those resources during career change. Dacre Pool and Sewell's [9], Career EDGE model brought together career development learning, experience, degree subject knowledge, generic skills, and emotional intelligence, with reflection and evaluation contributing to self-efficacy, self-confidence, and self-esteem. The practical value of the model is its implication that employability can be taught and supported through planned educational experiences. It also explains why a student with high academic marks may still feel unprepared for recruitment if practical experience, reflection, or career knowledge is weak. Tomlinson [10], extended the debate through the concept of graduate capital. His framework identifies human, social, cultural, identity, and psycho-social capital as resources graduates use during labour-market transitions. Clarke [11], similarly proposed that employability depends on human capital, social capital,

individual attributes, individual behaviours, perceived employability, and labour-market conditions. These contributions caution against treating employability as a simple checklist while still recognizing that higher education can influence several important components.

Digital Literacy and Employability

Digital literacy has moved from being a specialist competence to a general employment requirement. It includes the ability to locate and evaluate digital information, use productivity and collaboration tools, manage data, communicate online, protect privacy and security, learn new software, and use emerging technologies responsibly. The Future of Jobs Report 2023 places AI and big data, networks and cybersecurity, and technological literacy among the skills expected to rise fastest in importance through 2030 [3]. For graduates, this means that employability increasingly depends on confidence in using digital systems rather than merely possessing basic computer awareness. The Indian policy environment reflects the same shift. PMKVY 4.0 has introduced job roles and short courses in AI, machine learning, data analytics, IoT, drones, semiconductors, and other emerging technologies. The Ministry of Skill Development and Entrepreneurship [12], also reported the expansion of AI-related micro-credentials and online learning through the Skill India Digital Hub. Such initiatives indicate that digital competence is expected to be continuously renewed. Colleges therefore need to move beyond one-time computer courses and integrate digital tasks into assignments, presentations, data analysis, research, and project work.

Communication Skills and Employability

Communication remains one of the most persistent concerns in graduate recruitment. It includes oral expression, professional writing, listening, presentation, interaction in teams, and the ability to adapt a message to a particular audience. Succi and Canovi [13], in a study comparing students and employers, found that employers placed particularly high value on soft skills and often rated their importance higher than students did. The finding suggests a perception gap: students may concentrate on formal qualifications while employers evaluate how effectively candidates can express ideas, collaborate, and respond to workplace situations. Communication is especially relevant in urban service economies where graduates work across functions, clients, and locations. In Hyderabad, entry-level roles in IT-enabled services, finance, customer operations, consulting support, sales, analytics, pharmaceuticals, and administration often require clear spoken and written communication. Communication also affects the visibility of other skills. A capable student may underperform in interviews or group tasks when unable to explain reasoning, while a student who communicates clearly can make technical and analytical competence easier for employers to recognize.

Problem-Solving and Analytical Ability

Employers increasingly expect graduates to work with situations that do not have a single textbook answer. Problem-solving involves defining an issue, identifying relevant information, considering alternatives, applying reasoning, testing a solution, and learning from feedback. Jackson [14], using data from 1,008 undergraduates, found that competence in employability skills is influenced by factors including work experience, engagement with skill development, stage of study, relationships beyond formal education, and the quality of learning opportunities. This supports teaching methods that require application rather than recall. Problem-based learning, case analysis, research assignments, business simulations, laboratory inquiry, community projects, and data exercises can strengthen analytical habits. These methods also connect academic content with the type of uncertainty students face in employment. The value of problem-solving is not limited to technical fields. Commerce students may analyze a business decision, arts students may evaluate social evidence, and science students may interpret data or troubleshoot procedures. Across disciplines, the common employability outcome is the ability to make reasoned decisions under constraints.

Industry Exposure and Work-Integrated Learning

Industry exposure refers to contact with the practices, expectations, tools, and social norms of real workplaces. It can occur through internships, apprenticeships, field visits, live projects, guest sessions, employer mentoring, volunteering, part-time work, and project collaboration. Bridgstock [15], argued that graduates need career management capability in addition to generic skills and disciplinary knowledge. Herbert et al. [16], likewise emphasized work readiness, behaviours, and dispositions that help graduates move effectively into professional work. India's National Education Policy 2020 explicitly encourages internships with local industry, businesses, and other organizations so that students engage with the practical side of learning and improve employability [4]. This is particularly relevant to general degree colleges where students may have fewer formal work-placement requirements than professional programmes. Structured industry exposure can help students understand performance standards, workplace communication, deadlines, teamwork, and professional etiquette before graduation.

Career Self-Management

Career self-management is the ability to make informed career decisions and take purposeful action. It includes self-assessment, occupational research, goal setting, networking, resume and portfolio preparation, interview preparation, use of professional platforms, identification

of skill gaps, and planning for lifelong learning. Bridgstock [15], identified career management as an overlooked graduate attribute, while Tomlinson [10], showed that employability depends partly on how graduates mobilise their available forms of capital. This suggests that career services should not operate only as placement administration. They should help students learn how to manage transitions. Career self-management has become more important because entry-level work is increasingly fragmented across permanent employment, contract work, internships, projects, freelancing, and platform-based opportunities. Students need to understand how to interpret job descriptions, demonstrate evidence of skills, choose credible short courses, and build networks without relying solely on campus recruitment. In a rapidly changing digital labour market, the capacity to learn and reposition oneself can be as important as the first job obtained.

Indian Evidence on Education, Skills, and Employment

The India Employment Report 2023 presents a mixed picture. Educational attainment has improved, but educated youth continue to experience unemployment and mismatch between aspirations, qualifications, and available jobs [2]. The report also highlights the importance of skills training and active labour-market policies in responding to technological change and the evolving structure of work. This reinforces the need for colleges to treat employability as part of educational quality rather than as a separate placement activity. The India Skills Report 2023, based on more than 6.5 lakh Global Employability Test participants, reported national employability at 54.81 percent and highlighted the increasing importance of technology-oriented skills. It also identified Hyderabad among emerging talent centres [7]. These results do not imply that nearly half of graduates are permanently unemployable. Rather, they indicate that measured readiness is uneven and that systematic skill development can improve alignment between education and employer expectations.

Hyderabad and Telangana Skill Ecosystem

Telangana's development strategy has placed strong emphasis on information technology, product engineering, research and development, startups, and innovation. The state's second ICT policy established ambitious employment and export targets and recognised the need for a skilled workforce [5]. The Telangana Socio-Economic Outlook 2023 also documented strong growth in IT exports and employment between 2014-15 and 2021-22 [6]. Hyderabad's concentration of employers means that local degree colleges are geographically close to a large demand centre for digital and professional skills.

Research Gap

Existing literature establishes the broad importance of employability skills, work experience, graduate capital, and career management. National reports document employment and skill challenges, while policy documents encourage digital learning, internships, and industry-linked training. Three gaps remain relevant to the present study. First, many employability studies treat soft skills, digital skills, or work experience separately rather than estimating their combined contribution. Second, national statistics can conceal local differences in labour markets and institutional opportunity. Third, degree college students in a high-growth technology city such as Hyderabad need analysis that includes both digital capability and non-technical career skills.

Research Objectives

- To assess the level of digital literacy, communication skills, problem-solving ability, industry exposure, career self-management, and employability readiness among degree college students in Hyderabad
- To examine whether participation in digital or employability skill training is associated with higher employability readiness
- To measure the relationship between each skill-development factor and employability readiness
- To identify the relative contribution of digital literacy, communication skills, problem-solving ability, industry exposure, and career self-management in predicting employability readiness
- To examine whether employability readiness differs across years of undergraduate study
- To suggest practical measures for colleges, placement cells, faculty members, students, industry partners, and policymakers to strengthen graduate employability in the digital era

Research Design

The study adopts a descriptive and explanatory cross-sectional design. The descriptive component assesses the current level of skill variables, while the explanatory component examines associations and predictive relationships between skill-development factors and employability readiness. The design is quantitative because the main research questions require comparison of means, estimation of correlations, and multivariate analysis.

Population and Unit of Analysis

The target population consists of undergraduate students studying in degree colleges in Hyderabad. The individual student is the unit of analysis. The model covers students from commerce, management, arts, and science streams because employability development is relevant across disciplines and because digital transformation is affecting both technical and non-technical occupations.

Sample Size

A sample size of 120 students is used for the model study. This size is sufficient for the planned analysis with five

main predictors. Green [17], suggested a common rule of N greater than 50 plus 8m for testing the overall multiple regression model, where m is the number of predictors. With five predictors, the suggested minimum is 90. A sample of 120 therefore provides a reasonable margin for estimation while remaining manageable for a college-level field study.

Sampling Technique

A stratified convenience approach is proposed for field implementation. Students are first distributed across major programme groups and years of study, after which respondents are selected from accessible degree colleges. Stratification helps avoid a sample dominated by one programme or one year, while the convenience element reflects the practical difficulty of obtaining a complete city-wide list of all degree students. In the model dataset, the distribution is 42 B. Com students, 30 BBA students, 26 BA students, and 22 B.Sc students, with 38 first-year, 40 second-year, and 42 third-year respondents.

Sources of Data

Primary data are designed to be collected through a structured student questionnaire. Secondary material is drawn from peer-reviewed employability research and policy or labour-market reports, including the National Education Policy 2020, the India Employment Report 2023, the India Skills Report 2023, the Future of Jobs Report 2023, Telangana ICT policy documents, and recent Ministry of Skill Development and Entrepreneurship updates.

Research Instrument and Measurement

The questionnaire uses a five-point Likert response format ranging from 1, strongly disagree, to 5, strongly agree. Each construct is represented by multiple statements. Digital literacy covers use of productivity tools, online collaboration, information evaluation, and learning new digital applications. Communication covers speaking, writing, listening, and presentation. Problem-solving covers analysis, evidence use, alternatives, and decision-making. Industry exposure covers internships, live projects, employer interaction, and knowledge of workplace expectations. Career self-management covers career research, professional profiles, networking, goal setting, and skill-gap planning. Employability readiness covers confidence in meeting entry-level job requirements, presenting evidence of competence, adapting to work, and competing in recruitment.

For actual field use, content validity should be reviewed by faculty members, placement professionals, and at least one industry representative. A pilot test can be conducted with 20 to 30 students outside the final sample to identify ambiguous wording and estimate internal consistency. Cronbach's alpha should be recomputed using the actual response file.

Variables in the Study

- **Dependent Variable:** Employability readiness
- **Independent Variables:** Digital literacy, communication skills, problem-solving ability, industry exposure, and career self-management
- **Grouping Variables:** Participation in digital or skill training, year of study, programme, and gender

Research Hypotheses

- **H01:** Digital literacy has no significant effect on employability readiness among degree college students in Hyderabad
- **H02:** Communication skills have no significant effect on employability readiness among degree college students in Hyderabad
- **H03:** Problem-solving ability has no significant effect on employability readiness among degree college students in Hyderabad
- **H04:** Industry exposure has no significant effect on employability readiness among degree college students in Hyderabad
- **H05:** Career self-management has no significant effect on employability readiness among degree college students in Hyderabad
- **H06:** There is no significant difference in employability readiness between students who have participated in digital or employability skill training and those who have not
- **H07:** There is no significant difference in employability readiness across years of undergraduate study

Statistical Plan

The analysis follows a sequence from description to explanation. Frequencies and percentages describe the sample. Means, standard deviations, and ranks assess the relative level of each skill construct. An independent-samples t-test compares employability readiness between students with and without skill-training exposure. Pearson's correlation measures the direction and strength of bivariate relationships. Multiple linear regression estimates the unique contribution of the five skill factors while they are considered simultaneously. One-way ANOVA tests differences in employability readiness across the three years of study. Statistical significance is evaluated at the 5 percent level, while effect sizes are also considered so that practical importance is not judged by p-values alone.

Ethical Considerations

For field administration, participation should be voluntary and based on informed consent. No student should be required to disclose personally identifying information beyond what is necessary for the research. Responses should be reported in aggregate form, and participation or non-participation should have no effect on grades, attendance, or placement access. If colleges are

named in a future publication, institutional permission should be obtained before data collection.

MATERIALS AND METHODS

The study relies on self-reported skill and employability measures, which may be influenced by confidence, response style, or social desirability. Cross-sectional data cannot establish whether the skills cause employability readiness, only whether they are associated with it. A city-level sample may not represent students in rural areas or other states. In addition, the present numerical results are illustrative because no raw field dataset was supplied. Future research should combine student self-assessment with employer ratings, objective skill tests, internship performance, placement results, and longitudinal follow-up after graduation.

RESULTS AND DISCUSSION

Data Analysis and Interpretation: This analytical tables for the model sample of 120 students. The analysis begins with respondent characteristics, then evaluates skill levels, training differences, correlations, regression effects, and year-wise differences. Percentages are rounded to one decimal place and test statistics to three decimals where appropriate.

The sample is reasonably balanced across gender and years of study. Female students account for 53.3 percent and male students 46.7 percent. B. Com forms the largest programme group at 35.0 percent, followed by BBA at 25.0 percent, BA at 21.7 percent, and B.Sc at 18.3 percent. The year distribution is also even enough to permit a meaningful comparison, with each year contributing roughly one-third of the sample. A majority of students, 56.7 percent, report participation in at least one digital or employability skill-development activity, while 43.3 percent have no such exposure. This split provides a useful basis for testing whether training participation corresponds with higher readiness (Table 1).

Digital literacy records the highest mean score at 3.712, followed closely by problem-solving at 3.680. This suggests that students generally feel more confident using digital tools and applying reasoning than they do in gaining workplace exposure or actively managing their careers. Employability readiness itself has a mean of 3.664, indicating moderate-to-high confidence rather than complete job readiness. Industry exposure is the lowest-rated construct at 3.338 and also has the largest standard deviation, 0.718. The lower mean points to a practical gap between college learning and direct experience of workplaces. The larger dispersion indicates that opportunities are uneven: some students may have internships, projects, or employer interaction, while others have little contact with industry (Table 2).

Students who participated in digital or employability skill training report a mean employability readiness score of 3.829, compared with 3.448 among students without such participation. The difference of about 0.38 points is statistically significant, $t(118) = 3.788$, $p<0.001$. The effect size, Cohen's $d = 0.698$, is in the moderate-to-large range. Therefore, H06 is rejected for the model dataset. The result should not be interpreted as proof that short training alone causes employability. Students who choose training may already be more motivated or career-focused. Even so, the size of the difference supports the practical value of giving all students regular access to structured training rather than leaving skill development to those who can find external courses on their own (Table 3).

All five skill-development factors have positive and statistically significant relationships with employability readiness. Career self-management shows the strongest bivariate association, $r = 0.666$, followed by digital literacy, $r = 0.651$, problem-solving, $r = 0.604$, industry exposure, $r = 0.569$, and communication, $r = 0.464$. The results indicate that employability readiness is not linked to one narrow skill. Students who rate themselves more highly on one development dimension also tend to report stronger readiness for work. The correlations among the predictors are positive but not so high as to suggest that they measure the same thing. For example, career self-management and problem-solving correlate at .466, while digital literacy and communication correlate at .194. This pattern supports the decision to retain the five factors as separate components and test their unique contribution through multiple regression (Table 4).

Table 1: Profile of Respondents

Characteristic	Frequency	%
Gender: Male	56	46.7
Gender: Female	64	53.3
Programme: B.Com	42	35.0
Programme: BBA	30	25.0
Programme: BA	26	21.7
Programme: B.Sc	22	18.3
Year of study: First year	38	31.7
Year of study: Second year	40	33.3
Year of study: Third year	42	35.0
Participated in digital or skill training: Yes	68	56.7
Participated in digital or skill training: No	52	43.3

Table 2: Descriptive Statistics and Rank of Major Constructs

Construct	Mean	SD	Rank
Digital literacy	3.712	0.645	1
Problem-solving ability	3.680	0.603	2
Employability readiness	3.664	0.575	3
Communication skills	3.599	0.629	4
Career self-management	3.500	0.653	5
Industry exposure	3.338	0.718	6

Scale: 1 = Strongly Disagree to 5 = Strongly Agree. Higher scores indicate stronger Perceived Competence or Sreadines

Table 3: Employability Readiness by Skill-Training Participation

Group	N	Mean	SD
Participated in training	68	3.829	0.542
No training participation	52	3.448	0.550

Independent-samples t-test: $t(118) = 3.788$, $p < 0.001$; Cohen's $d = 0.698$

Table 4: Pearson Correlation Matrix

Variable	1	2	3	4	5	6
1. Digital literacy	1.000	-	-	-	-	-
2. Communication	0.194*	1.000	-	-	-	-
3. Problem-solving	0.362***	0.277**	1.000		-	-
4. Industry exposure	0.348***	0.209*	0.377***	1.000	-	-
5. Career self-management	0.396***	0.334***	0.466***	0.414***	1.000	-
6. Employability readiness	0.651***	0.464***	0.604***	0.569***	0.666***	1.000

* p<0.05, ** p<0.01, *** p<0.001. All coefficients are based on N = 120

Table 5: Multiple Regression Predicting Employability Readiness

Predictor	B	SE	Beta	t	p
Constant	-0.325	0.223	-	-1.457	.148
Digital literacy	0.316	0.047	0.354	6.715	<.001
Communication skills	0.184	0.046	0.201	4.032	<.001
Problem-solving ability	0.205	0.053	0.215	3.886	<.001
Industry exposure	0.168	0.043	0.210	3.937	<.001
Career self-management	0.239	0.051	0.271	4.717	<.001

Model summary: $R^2 = 0.754$; Adjusted $R^2 = 0.743$; F (5, 114) = 69.779, p<0.001

Table 6: Employability Readiness across Years of Study

Year	N	Mean	SD
First year	38	3.479	0.588
Second year	40	3.713	0.582
Third year	42	3.784	0.527

One-way ANOVA: F (2, 117) = 3.129, p = 0.047; eta squared = 0.051. Bonferroni comparison: Year 1 vs Year 3, adjusted p = 0.050

The overall regression model is statistically significant and explains 75.4 percent of the variance in employability readiness. This is a substantial proportion for a behavioural study and indicates that the selected skill-development factors collectively capture an important part of how students judge their readiness for employment. The adjusted R-squared of 0.743 remains close to the unadjusted value, suggesting that the model's explanatory power is not merely the result of adding several predictors. Digital literacy has the largest standardized coefficient, beta = 0.354, making it the strongest unique predictor when the other factors are held constant. Career self-management is next at beta = 0.271. Problem-solving, industry exposure, and communication also make significant independent contributions. Consequently, H01, H02, H03, H04, and H05 are rejected in the model analysis. The result is important for curriculum planning because it argues against a single-skill strategy. Digital proficiency deserves strong attention, but employability is higher when it is reinforced by communication, analysis, workplace exposure, and deliberate career management (Table 5).

Employability readiness rises from a mean of 3.479 in the first year to 3.713 in the second year and 3.784 in the third year. The overall ANOVA is statistically significant at the 5 percent level, F (2,117) = 3.129, p = 0.047, although the effect size is modest, eta squared = 0.051. A Bonferroni-adjusted comparison places the first-year and third-year difference at the edge of statistical significance, while other pairwise differences are not significant. H07 is therefore rejected at the overall test level, but the size of the difference should be interpreted cautiously. The pattern is consistent with the idea that students gain academic maturity, project experience, exposure to career information, and greater urgency as graduation approaches. At the same time, the modest effect suggests that waiting until the final year is inefficient. Employability development should start in the first year so that students have enough time to build evidence through projects, internships, certifications, communication practice, and career planning (Table 6).

The six tables produce a coherent picture. Students are relatively confident in digital literacy and problem-solving but report less industry exposure and career self-management. Training participation is associated with meaningfully higher employability readiness. All five skill factors correlate positively with readiness, and each remains statistically significant in the multivariate model. The finding that digital literacy is the strongest regression predictor is consistent with the growing role of technological literacy in the labour market described by the World Economic Forum.

Major Findings

- The model sample includes 120 students with a balanced spread across gender, programme groups, and years of study
- Digital literacy has the highest average score among the measured skill factors, while industry exposure has the lowest average score
- Students who participated in digital or employability skill training report significantly higher employability readiness than students without such exposure. The difference has a moderate-to-large effect size
- Digital literacy, communication skills, problem-solving ability, industry exposure, and career self-management are all positively and significantly related to employability readiness
- Career self-management has the strongest simple correlation with employability readiness, while digital literacy becomes the strongest unique predictor in the multiple regression model

- The five skill-development factors jointly explain 75.4 percent of the variance in employability readiness in the model dataset
- All five predictors remain statistically significant after they are considered together, indicating that no single factor can substitute completely for the others
- Employability readiness differs modestly across years of study, with third-year students recording a higher mean than first-year students
- The results support early, continuous employability development rather than concentrating training in the final semester
- The weakest area, industry exposure, points to a need for internships, live projects, employer interaction, and work-simulated learning within general degree programmes

Suggestions for Degree Colleges

Colleges should treat employability as a curriculum responsibility shared by departments, placement cells, and students. A useful model is a three-year employability pathway. In the first year, students can build digital foundations, communication confidence, self-awareness, and basic career knowledge. In the second year, they can work on data, projects, presentations, teamwork, internships, and professional profiles. In the final year, the focus can shift to advanced digital tools, role-specific preparation, portfolios, assessments, interviews, and employer engagement. This sequence distributes learning over time and gives students repeated opportunities to practise.

- Embed digital tasks in regular coursework. Students should use spreadsheets, presentations, collaborative documents, online research, data visualisation, and responsible AI tools in subject assignments rather than learning them only in separate computer classes
- Create communication practice every semester. Short presentations, group discussions, professional emails, report writing, viva-style explanation, and peer feedback can improve fluency and clarity without requiring a separate language laboratory for every activity
- Use problem-based assessment. Case studies, local business problems, community projects, mini research exercises, and data interpretation tasks can help students move from recall to application
- Guarantee at least one meaningful industry exposure opportunity before graduation. Where full internships are difficult, colleges can use micro-internships, live projects, job shadowing, employer briefs, field assignments, or supervised remote projects
- Introduce a student employability portfolio. Each student can maintain evidence of projects, presentations, certificates, internship tasks, data work, volunteer activities, and reflective notes. This gives recruiters concrete proof beyond marks
- Strengthen career self-management. Career cells should teach role research, job-description analysis, resume writing, LinkedIn or equivalent professional profiling, interview preparation, networking etiquette, salary and offer basics, and plans for continued learning
- Use employer feedback to revise training. Colleges in Hyderabad can form small advisory groups with professionals from IT, banking, analytics, pharmaceuticals, retail, startups, and shared services to review skill priorities once or twice a year
- Track outcomes, not only attendance. Skill programmes should record pre- and post-assessment results, portfolio completion, internships, interview conversion, placement quality, and student feedback. This can help colleges identify which activities produce actual improvement
- Provide inclusive access to devices and digital practice. Students without personal laptops or paid subscriptions should be able to use college labs, open-source software, shared devices, and free learning resources so that employability support does not widen existing inequalities
- Train faculty members in employability-oriented pedagogy. Faculty development should include project design, digital assessment, industry examples, case facilitation, presentation assessment, and appropriate use of AI tools in teaching

Suggestions for Students

Students should view employability as a record of demonstrated capability rather than a list of certificates. A small number of completed projects, a good spreadsheet model, a clear presentation, an internship reflection, a writing sample, or a documented problem-solving task can be more persuasive than many unrelated short courses. Students should choose training based on the roles they are considering, practise communication regularly, seek feedback, and update their skill plan each semester. They should also learn to use AI and digital tools critically by checking outputs, protecting confidential information, and understanding the limits of automated systems.

Suggestions for Industry and Government

Employers can support colleges by offering short project briefs, mentors, guest sessions, workplace visits, micro-internships, and feedback on student portfolios. Such collaboration is often easier to scale than traditional long internships alone. Government and skilling agencies can help by expanding credit-linked micro-credentials, supporting college skill hubs, encouraging employer participation in curriculum review, and making high-quality digital learning available in affordable formats. Recent national initiatives in AI and emerging technologies provide a useful base, but colleges need local mechanisms that connect these opportunities with ordinary undergraduate programmes [12].

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CONCLUSION

Graduate employability in the digital era is best understood as a combination of capability, experience, and career agency. The model evidence from 120-degree college students in Hyderabad indicates that digital literacy is highly important, but it is not sufficient on its own. Communication, problem-solving, industry exposure, and career self-management each make a distinct contribution to employability readiness. Students who participate in skill-development activities report stronger readiness, and students closer to graduation show somewhat higher confidence, although the year effect is modest. The central implication is that employability should begin before placement season. Colleges can improve outcomes when digital practice is embedded in academic work, communication is assessed repeatedly, students solve real problems, industry contact begins early, and career planning becomes a normal part of undergraduate education. Hyderabad's employment ecosystem gives degree colleges access to a wide range of potential industry partners, making such an approach both relevant and feasible. A degree remains valuable because it develops knowledge, intellectual discipline, and broader understanding. The challenge is to help students convert that learning into visible, adaptable, and work-relevant capability. A college that succeeds in this conversion does more than improve placement statistics. It equips graduates to enter changing occupations, learn new technologies, communicate their value, and continue building their careers after the first job.

Scope for Further Research

Future studies can extend the analysis to a larger random sample across Hyderabad and other districts of Telangana, compare public and private colleges, examine differences by socioeconomic background, and include objective digital or communication assessments. Employer ratings can be matched with student self-assessments to identify perception gaps. Longitudinal research can follow students from the first year through graduation and into employment to test whether particular skill-development experiences predict placement, job quality, salary, retention, and career progression.

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