Industry Perspective on Student Internships: Insights from HR's and Training Facilitators in Contemporary Workplace Settings

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Abstract: *This study examines the dual impact of student internships on organizations in Tamil Nadu, focusing on both positive contributions and operational challenges as perceived by Human Resource (HR) managers and training facilitators. The primary objective was to evaluate how internships influence productivity, efficiency, supervisory burden, costs, data security, and project continuity. A quantitative, cross-sectional survey was conducted among 418 respondents from major industry sectors across Tamil Nadu during March–July 2025. Data were collected through a structured questionnaire with nine constructs (45 items), achieving high reliability (Cronbach's* $\alpha = 0.923$*). Analyses included t-tests, ANOVA, regression, correlation, and chi-square tests using SPSS (Version 23). Results revealed that internships significantly improved core work efficiency* ($M = 4.12$, $t(417) = 22.13$, $p < .001$*), team efficiency through role clarity* ($r = 0.514$, $R^2 = 0.264$, $p < .001$*), and workplace integration* ($\beta = 0.47$, $R^2 = 0.240$, $p < .001$*). Longer durations enhanced project continuity* ($F(2,415) = 10.83$, $p < .001$*), with sectoral contributions particularly evident in manufacturing and healthcare. However, challenges included increased supervisory burden* ($r = 0.521$, $p < .001$*), error rates linked to inexperience* ($R^2 = 0.343$, $p < .001$*), cost burdens* ($M = 3.73$, $t(417) = 9.78$, $p < .001$*), and confidentiality risks in remote settings* ($\chi^2(4, N = 418) = 15.84$, $p < .001$*).The study concludes that internships are critical for employability and skill development but impose measurable organizational risks. Addressing these through structured supervision, sector-specific training, extended durations, and stronger data protocols can enhance the quality and sustainability of internship programs in Tamil Nadu.*

Keywords*: Student Internships challenges, Organizational Impact, HR's Perspectives, Skill Gaps, Workplace efficiency and Supervisory burden, Data Security*

Introduction

Internship programs have become a cornerstone of higher education–industry collaboration, designed to bridge the academic learning and workplace implicational gaps. In the

contemporary workplaces context, particularly in emerging economies like India, internships are viewed as critical mechanisms for enhancing employability and building industry-ready graduates (Kapareliotis, Voutsina, &Patsiotis, 2019; Succi &Canovi, 2020). For organizations, internships provide access to potential talent and opportunities to enhance productivity, while for students they offer practical exposure and skill development (Gault, Leach, & Duey, 2018). Yet, despite their potential benefits, internships also present multiple challenges including supervisory burden, additional resource costs, confidentiality risks, and disruptions caused by short internship tenure (Pradhan, 2022; Narayanan & Olk, 2021). These dualities demand a nuanced examination of internships not just as a training tool for students, but as a workplace intervention that directly influences organizational processes.

Existing literature has largely centered on the employability outcomes of internships, emphasizing the development of soft skills, work readiness, and graduate transition into the labour market (Andrews & Higson, 2019; Bisschoff&Massyn, 2025). Employers frequently highlight the importance of adaptability, teamwork, and communication in evaluating internship success (Jackson & Collings, 2018). However, far fewer studies have analyzed internships from the industry side, where HR managers and training facilitators must balance productivity gains with rising workloads, costs, and risks (Singh & Sharma, 2021; Padhy, 2013). Moreover, with the growing adoption of hybrid and remote internship formats, organizations face new challenges related to cultural integration, monitoring, and data confidentiality (Narayanan & Olk, 2021; Lan, 2021). This creates a critical research gap: while the discourse on internships is dominated by graduate employability perspectives, less attention has been given to the organizational implications of internships as experienced by industry stakeholders.

The present study addresses this gap by investigating the perceptions of Human Resource managers and training facilitators in Tamil Nadu, one of most industrially diverse Indian states. Drawing on responses from 418 participants across IT, manufacturing, healthcare, education, logistics, and service sectors, the study systematically evaluates how internships influence operational productivity, skill and knowledge gaps, supervisory and administrative burdens, resource and cost implications, error rates, confidentiality and data security, cultural fit, role clarity, and project continuity. The purpose of the paper is thus twofold: (1) to provide an evidence-based account of both the positive contributions and negative challenges of student internships, and (2) to offer sector-specific insights that inform the design of more sustainable and effective internship models.

This study contributes to the literature in three significant ways. First, it extends the understanding of internships beyond the traditional focus on student employability to include organizational impacts and HR perspectives, thus bridging an overlooked gap in higher education and workforce research. Second, it provides empirical validation through statistical rigor using exploratory factor analysis, regression, ANOVA, correlation, and chi-square testing to capture the multidimensional outcomes of internships. Third, it contextualizes findings within Tamil Nadu's industrial ecosystem, offering region-specific insights relevant for policymakers, HR practitioners, and academic institutions engaged in strengthening industry–academia partnerships.

Problem Statement: While internships are widely implemented across Tamil Nadu's diverse industries, ranging from IT hubs in Chennai to manufacturing clusters in Coimbatore and Tirupur, there is little systematic evidence on how these programs affect organizational processes and HR management practices. Most studies emphasize the employability of students, overlooking the dual impact on industries where productivity gains coexist with supervisory, financial, and security burdens. This lack of industry-centered research creates a gap in designing internship models that are sustainable for both students and organizations. Addressing

this gap, the present study seeks to capture the perspectives of HR managers and training facilitators, thereby providing a more balanced and practice-oriented understanding of student internships in contemporary workplace settings.

Reviews of Literature

Internship programs play a critical role in bridging academic learning with workplace demands, yet the outcomes remain contested across contexts. A central theme in the literature is the skill mismatch between graduates' academic preparation and industry requirements. Employers consistently emphasize the value of soft skills such as teamwork, adaptability, and communication over purely technical knowledge (Andrews & Higson, 2019; Succi &Canovi, 2020). This mismatch is evident across India, where sectoral variations in employability highlight the persistent challenge of aligning educational curricula with industry-specific expectations (Singh & Sharma, 2021). Recent frameworks have called for structured approaches to embed competencies that enhance employability, particularly through soft skills integration (Bisschoff&Massyn, 2025). At the same time, internships are recognized as a proven mechanism to enhance employability and work readiness. Empirical studies show that internship participation improves career prospects, employer trust, and job marketability (Kapareliotis et al., 2019; Gault et al., 2018; Jackson & Collings, 2018). However, the implementation of internships often creates organizational challenges. Supervisory burden and resource demands including time, training, and stipends have been identified as recurring barriers to quality outcomes (Pradhan, 2022; Lan, 2021). In the Indian context, HR professionals argue that "industry-ready" preparation is still inadequate, requiring stronger academic–industry linkages to reduce costs and risks (Padhy, 2013).A further strand of literature highlights emerging risks of virtual and hybrid internships. While these models increase flexibility, they also intensify concerns around confidentiality, monitoring, and student engagement (Narayanan & Olk, 2021). Such risks are especially salient for IT and service sectors where data security is paramount. Moreover, poor workplace integration, cultural misalignment, and unclear role definitions reduce efficiency and collaboration, thereby limiting the effectiveness of internships (Lan, 2021; Mohapatra et al., 2025).Together, these studies underscore two contrasting perspectives: internships can significantly enhance graduate employability and organizational efficiency, but they simultaneously impose quality risks and resource burdens. However, most existing research privileges student perspectives, while the employers' voice particularly HR managers and training facilitators in regional contexts remains underexplored (Pradhan, 2022). This study addresses that gap by situating internships within the Tamil Nadu context, where diverse industries host interns under varying resource and cultural conditions.

Research Gap: Although internships are widely recognized as a bridge between academia and industry, most existing research disproportionately emphasizes the student perspective focusing on employability enhancement, career readiness, and skill acquisition (Kapareliotis et al., 2019; Jackson & Collings, 2018; Bisschoff & Massyn, 2025). Comparatively little attention has been paid to the organizational side of internships, particularly the challenges experienced by HR managers and training facilitators who operationalize these programs. In the Indian context, studies point to persistent skill mismatches and sectoral variations (Singh & Sharma, 2021), growing concerns around supervisory and resource burdens (Pradhan, 2022; Lan, 2021), and emerging data security issues in remote internships (Narayanan & Olk, 2021). However, these issues have not been systematically studied within regional industrial ecosystems, such as Tamil Nadu, where SMEs, service industries, and global IT hubs coexist and host interns under diverse constraints. Thus, a clear gap exists in capturing how internships simultaneously generate benefits (productivity, efficiency, role clarity) and risks (costs, errors, supervision, confidentiality) from the employers' perspective. This study

addresses that gap by using statistical evidence to evaluate the multi-layered impacts of internships across industries in Tamil Nadu.

Conceptual Framework: Drawing from the literature, the study conceptualizes internships as a dual-impact phenomenon where positive and negative outcomes coexist. On one side, internships contribute to operational productivity, team efficiency, and role clarity (Kapareliotis et al., 2019; Bisschoff&Massyn, 2025). On the other, they generate skill gaps, supervisory burdens, financial costs, confidentiality risks, and disruptions due to short tenures (Pradhan, 2022; Narayanan & Olk, 2021). This structure points the HR managers and training facilitators as the critical mediators who balance these trade-offs. Their perspectives provide greater insights into how internship outcomes differ across sectors, modes (on-site, hybrid, remote), and durations. Specifically, the model assumes that: (1) Skill and knowledge gaps increase supervisory and training burdens. (2) Supervisory and administrative demands influence productivity outcomes. (3) Resource and cost implications affect organizational willingness to host interns. (4) Error rates and confidentiality risks are amplified in remote/hybrid modes. (5) Internship duration, cultural integration, and role clarity were strongly predicts project continuity and efficiency. By situating these constructs in Tamil Nadu's industrial ecosystem where manufacturing, IT, logistics, and services dominate the study provides an evidence-based framework to analyze the multi-layered impact of internships on organizational quality outcomes.

Objectives of the Study

1. To examine the perceived benefits of student internships in enhancing organizational productivity, team efficiency, and role clarity.
2. To Analyze the challenges and risks of hosting interns, including supervisory burden, cost implications, error rates, and confidentiality concerns.
3. To explore how these outcomes vary across sectors, organizational types, sizes, and internship modes (on-site, hybrid, remote) in Tamil Nadu.
4. To test the relationship between internship practices (duration, integration, clarity) and project continuity and efficiency outcomes.
5. To provide evidence-based implications for HR managers, training facilitators, and policymakers to improve the quality of internships in Tamil Nadu.

Hypotheses of the Research Work

1. Internships do not significantly improve core work efficiency and operational outcomes.
2. There are no significant sectoral differences in perceived skill and knowledge gaps among interns.
3. Supervisory and administrative demands are not significantly related to organizational productivity outcomes.
4. Resource and cost implications do not significantly affect perceptions of internship quality.
5. Error rates due to intern inexperience do not significantly predict quality risks in organizations.
6. Confidentiality and data security concerns do not vary significantly across internship modes (on-site, hybrid, remote).
7. Internship duration does not significantly influence project continuity.
8. Workplace integration and cultural fit do not significantly predict team efficiency.
9. Role clarity and task definition are not significantly related to team efficiency.

Each hypothesis is directly tied to constructs validated in prior studies (Pradhan, 2022; Narayanan & Olk, 2021; Kapareliotis et al., 2019) and contextualized for Tamil Nadu's diverse industries.

Research Method

Quantitative, cross-sectional research design is employed to examine the perspectives of Human Resource (HR) managers and training facilitators on the impact of student internships in Tamil Nadu. The design was chosen to capture both the positive outcomes of internships such as productivity enhancement, role clarity, and cultural integration and the challenges such as supervisory burden, cost implications, confidentiality risks, and error rates. The population for this study comprised HR managers, training facilitators, and organizational representatives from diverse industry sectors across Tamil Nadu. The coverage included major industrial clusters such as Chennai, Coimbatore, Hosur, Madurai, Tirupur, Trichy, Salem, Neyveli, and Tuticorin, which represent the state's core hubs for IT, manufacturing, logistics, healthcare, education, and other industries. A combination of purposive and stratified sampling was employed. Purposive sampling ensured inclusion of only those respondents directly involved in hosting or supervising interns, while stratification allowed proportional coverage across industries and organizational types (private, public, NGOs, and start-ups).

The minimum required size of sample was determined by Cochran's formula (1977) for large populations: where ZZ = 1.96 for 95% confidence level, pp = 0.5 (maximum variability), and ee = 0.05 (5% margin of error). Substituting these values yields = 384.16. Thus, a minimum of 385 responses was required. The achieved sample of 418 respondents not only exceeded this benchmark but also surpassed the recommended threshold of 10–15 cases per item for factor analysis (Hair et al., 2019), given the instrument included 26 items. This ensured statistical robustness for exploratory factor analysis, regression modelling, and multivariate testing.

The final sample included HR managers (59.57%), training facilitators (33.25%), and other related roles (7.18%). The respondents represented multiple sectors such as IT and software services, manufacturing, healthcare, education, hospitality, logistics, consulting, and NGOs. Organizations of different sizes were covered, ranging from below 50 employees to over 1000 employees, with internship hosting experience ranging from less than a year to more than seven years. A structured questionnaire was developed, drawing from prior research (Kapareliotis et al., 2019; Lan, 2021; Bisschoff&Massyn, 2025; Pradhan, 2022). The instrument comprised 26 items covering nine dimensions: operational productivity, skill and knowledge gaps, supervisory and administrative burden, resource and cost implications, error rates from inexperience, confidentiality and data security, short tenure and knowledge transfer, workplace integration and culture fit, and role clarity and task definition. A 5 point Likert scale was used. Demographic data included industry, organization type, size, internship mode, and respondent experience. Reliability analysis confirmed internal consistency, with all Cronbach's α value above 0.70 (Nunnally, 1978). EFA with PCA and Varimax rotation revealed a nine-factor solution explaining 88.43% of the variance. Adequacy of sampling was confirmed with a KMO value of 0.921 and sphericity test result of $\chi^2 = 6458.23$, $p < .001$.

Data were collected between March and July 2025 via online (Google Forms) and offline distribution. Respondents were contacted through HR networks, professional associations, and academic–industry collaboration channels. Ethical clearance was obtained, informed consent was secured, and anonymity was assured. The dataset was analyzed using SPSS (Version 28). Descriptive statistics were used to summarize demographics. Reliability tests confirmed construct consistency. One-sample t-tests evaluated deviation from neutrality, ANOVA and Tukey HSD compared sectoral differences, correlation and regression assessed predictive relationships, and chi-square tests examined categorical associations. Effect sizes (Cohen's d, η^2, Cramér's V) were computed to assess the magnitude of effects alongside p-values. All analyses adhered to a significance threshold of $p < .05$, with stronger results highlighted at $p < .001$.

Analysis & Results

Table 1: Study Area Profile of Respondents (N = 418)

Demographic Variable	Category / Cluster	f	%	Representative Tamil Nadu Regions	Internship Relevance
Industry Sector	IT & BFSI (IT Services + Banking/Finance)	52	12.4	Chennai, Coimbatore, Tirunelveli	Data security, compliance, and remote internship challenges
	Manufacturing & Engineering	41	9.8	Coimbatore, Hosur, Chennai	Technical skill gaps; high internship reliance
	Healthcare & Life Sciences	26	6.2	Chennai, Madurai, Coimbatore	Compliance-heavy; patient safety concerns
	Education & Training	39	9.3	Chennai, Madurai, Trichy	Short-term internships; continuity issues
	Media & Creative Industries	31	7.4	Chennai, Coimbatore	Creativity-driven; cultural adaptation
	Hospitality & Tourism	38	9.1	Chennai, Mamallapuram, Ooty, Kodaikanal	Seasonal, heavy supervisory input
	Retail & E-commerce	53	12.7	Chennai, Madurai, Salem, Trichy	Customer-facing; adaptability critical
	Logistics & Supply Chain	62	14.8	Chennai Port, Tuticorin, Coimbatore	Confidentiality issues; rapid growth
	Energy & Environmental Services	22	5.3	Neyveli, Thoothukudi, Chennai	Technical safety & compliance
	Consulting & Professional Services	38	9.1	Chennai, Coimbatore	Advisory roles; role clarity challenges
	NGOs & Social Enterprises	16	3.8	Salem, Erode, Tirupur	Community-oriented; supervision burden

Source: *Primary Data*

The demographic profile of respondents highlights the diverse industrial base of Tamil Nadu and its implications for internship quality. The logistics and supply chain sector (14.8%) emerged as the largest contributor, reflecting the state's strategic hubs such as Chennai Port and Tuticorin, where issues of confidentiality and rapid internship adoption are prominent. This was followed closely by retail and e-commerce (12.7%) and IT & BFSI (12.4%), concentrated in Chennai, Coimbatore, and tier-two cities, where concerns of adaptability, data security, and compliance dominate. Manufacturing and engineering (9.8%) and consulting and professional services (9.1%) also featured strongly, underscoring the reliance on interns for technical processes and advisory roles, though both face persistent role clarity and skill alignment challenges. Sectors such as education and training (9.3%) and hospitality and tourism (9.1%) highlighted issues of short internship duration and seasonal supervisory burden, respectively, while healthcare (6.2%) and energy and environmental services (5.3%) emphasized compliance-heavy environments that demand rigorous intern preparedness. Finally, NGOs and social enterprises (3.8%), though the smallest segment, revealed the unique burden of supervision in community-centered settings. Collectively, these findings illustrate that internships in Tamil Nadu are embedded within distinct sectoral realities ranging from technical and compliance-driven contexts to customer-facing and community-focused environments each shaping both the opportunities and challenges of hosting student interns.

Table 2: Demographic Profile of Respondents (N = 418)

Variable	Category
Organization Type	Private (61.2%), Public (23.2%), Start-up (7.4%), NGO (8.1%)
Organization Size	<250 employees (45.2%), 250–999 (27.3%), 1000+ (27.5%)
Years Hosting Interns	None/<1 year (17.2%), 1–6 years (49.8%), 7+ years (33.0%)
Average Interns per Year	1–5 (29.2%), 6–10 (35.4%), 11–20 (22.7%), 21+ (12.7%)
Internship Duration	4–8 weeks (24.2%), 9–12 weeks (35.4%), 13–16 weeks (22.3%), 17+ weeks (18.2%)
Internship Mode	On-site (51.4%), Remote (23.4%), Hybrid (25.1%)
Respondent Role & Experience	HR Managers (59.6%), Training Facilitators (33.3%), Others (7.1%); <10 yrs exp. (44.5%), 11–20 yrs (39.5%), 21+ yrs (16.0%)

Source: *Primary Data*

The organizational and respondent characteristics provide further context to the study's findings. A clear dominance of private sector organizations (61.2%) reflects the internship reliance of Tamil Nadu's corporate ecosystem, particularly in IT, manufacturing, and services, while the public sector (23.2%) and NGOs (8.1%) highlight the role of socially driven and government-linked initiatives. The presence of start-ups (7.4%) also underscores the growing entrepreneurial landscape, though often constrained by limited resources. In terms of organizational size, nearly half of the respondents (45.2%) represented SMEs with <250 employees, while larger organizations (250–999, 27.3%; 1000+, 27.5%) were equally represented, suggesting that internships are embedded across both resource-constrained and resource-abundant firms.

The hosting experience further illustrates maturity in internship practices: while 17.2% of organizations were relatively new to internships, almost half (49.8%) had 1–6 years of experience, and a substantial 33.0% had hosted interns for 7+ years, indicating a progressive institutionalization of internships in Tamil Nadu. The number of interns hosted annually was most commonly between 6–10 interns (35.4%), followed by smaller cohorts of 1–5 interns (29.2%), showing a balanced distribution between intensive and moderate hosting practices. Internship durations were clustered around 9–12 weeks (35.4%), aligning with semester-based requirements, although shorter durations (4–8 weeks, 24.2%) and longer tenures (13+ weeks, 40.5%) illustrate sector-specific variations in project needs and continuity. The internship mode data reveal that on-site models still dominate (51.4%), but remote (23.4%) and hybrid (25.1%) formats are increasingly significant, particularly in IT/ITES and service industries, echoing global post-pandemic internship trends (Narayanan & Olk, 2021). Finally, the respondent profile emphasizes the reliability of the data: the majority were HR managers (59.6%), supported by training facilitators (33.3%), both with substantial professional experience 44.5% below 10 years, 39.5% between 11–20 years, and 16.0% above 21 years ensuring perspectives were drawn from individuals with both operational and strategic insights. Collectively, these demographic features underscore that the study captures a comprehensive, cross-sectional representation of Tamil Nadu's internship landscape across sectors, organizational forms, and modes of delivery.

Exploratory Factor Analysis: The Exploratory Factor Analysis (EFA) produced a robust nine-factor structure that explained 88.43% of the total variance, indicating a comprehensive representation of internship-related impacts. Sampling adequacy was confirmed by a value of KMO = 0.921 and test of sphericity ($\div^2$ = 6458.23, p < .001), confirming the suitability for factor analysis (Hair et al., 2019). Reliability was ensured as all constructs achieved Cronbach's á > 0.80, indicating internal consistency (Nunnally, 1978). The first factor, Internship Impact on Productivity (19.33% variance), highlighted improvements in operational speed, quality, and deadlines (loadings 0.769–0.812), confirming earlier findings that well-structured internships enhance organizational performance (Gault et al., 2018). The second factor, Skill and Knowledge Gaps (17.33%), revealed weaknesses in technical, industry, and communication skills (loadings 0.745–0.801). This mirrors Singh and Sharma (2021), who emphasized persistent skill mismatches in India, especially relevant to Tamil Nadu's manufacturing and healthcare hubs. Supervisory and Administrative Burden (15.38%) showed high loadings (0.771–0.832) for supervision and administrative strain, reinforcing Pradhan's (2022) argument that internships often demand significant managerial input an acute issue for Tamil Nadu's SMEs with lean staffing structures. Resource and Cost Implications (13.91%) and Error Rates from Inexperience (12.33%) revealed that costs of training, stipends, and infrastructure (0.758–0.802), alongside errors and rework (0.765–0.814), remain barriers to quality outcomes. These findings are especially critical in export-oriented industries like textiles and leather, where errors and cost overruns undermine competitiveness (Succi & Canovi, 2020). Concern's of Confidentiality and Data Security (10.15%) emerged strongly (0.763–0.823), particularly in IT/ITES contexts where hybrid internships amplify risks (Narayanan & Olk, 2021). Similarly, Short Tenure and Knowledge Transfer (6.86%) underscored disruptions due to limited internship duration (0.658–0.816), aligning with Lan (2021) who advocated for longer placements to enhance continuity. The final dimensions Workplace Culture Integration (4.36%) and Role Clarity (0.35%) though smaller in variance, demonstrated strong item loadings (0.763–0.824 and 0.794–0.818 respectively). These confirm that cultural adaptation and clear role definitions are decisive for maximizing efficiency (Kapareliotis et al., 2019; Bisschoff & Massyn, 2025).In total, the EFA confirms that internships in Tamil Nadu generate dual outcomes: while they enhance productivity and efficiency, they also introduce challenges in supervision, costs, errors, and data security. The nine factors provide a structured framework that contextualizes both benefits and risks, offering actionable insights for HR managers and training facilitators.

Table 3: Internship Impact Dimensions (N = 418)

Factor (Construct)	Key Items (Highest Loadings)	Factor Loadings (Range)	Variance Exp., (%)	Cronbach's α	Interpretation
F1: Internship Impact on Productivity	Q1 – Interns improve speed (0.812), Q2 – Improve quality (0.784), Q3 – Meet deadlines (0.769)	0.769 – 0.812	19.33	0.891	Interns enhance productivity & output consistency.
F2: Skill & Knowledge Gaps	Q4 –Technical skills lacking (0.801), Q5 – Lack of industry knowledge (0.774), Q6 – Poor communication (0.745)	0.745 – 0.801	17.33	0.873	Gaps in core skills create dependency and delays.
F3: Supervisory & Admin Burden	Q7 – Time on supervision (0.832), Q8 – Admin load (0.806), Q9 – Supervisory task conflict (0.771)	0.771 – 0.832	15.38	0.861	Supervisory/admin strain limits efficiency.
F4: Resource & Cost Implications	Q10 – Infra costs (0.802), Q11 – Training costs (0.789), Q12 – Stipend burden (0.758)	0.758 – 0.802	13.91	0.844	Hosting interns increases tangible financial costs.

F5: Error Rates from Inexperience	Q13 – Quality issues (0.814), Q14 – Error rates (0.789), Q15 – Rework (0.765)	0.765 – 0.814	12.33	0.852	Inexperience leads to errors and rework.
F6: Confidentiality & Data Security	Q16 – Data confidentiality (0.823), Q17 – IP risks (0.781), Q18 – Info leakage (0.763)	0.763 – 0.823	10.15	0.839	Security vulnerabilities emerge in remote contexts.
F7: Short Tenure & Knowledge Transfer	Q19 – Project disruption (0.816), Q20 – Incomplete knowledge transfer (0.681), Q21 – Lost momentum (0.658)	0.658 – 0.816	6.86	0.821	Short internships disrupt continuity and transfer.
F8: Workplace Culture Integration	Q22 – Difficulty integrating (0.824), Q23 – Struggles with norms (0.791), Q24 – Cultural mismatch (0.763)	0.763 – 0.824	4.36	0.847	Integration and culture fit are critical for efficiency.
F9: Role Clarity & Task Definition	Q25 – Unclear roles (0.818), Q26 – Role confusion delays (0.794)	0.794 – 0.818	0.35	0.834	Clear roles improve productivity and efficiency.

Source: Primary Data.

Model Fit:

KMO = 0.921 '! Sampling adequacy excellent**, Bartlett's Test ÷²(325) =** 6458.23, p < .001 '! Factorable**, Total Variance Explained:** 88.43% across 9 factors.

The factor analysis demonstrates that internships in Tamil Nadu deliver both efficiency gains and structural challenges. On the positive side, internships contribute substantially to productivity enhancement (19.33% variance explained), while also promoting cultural integration and role clarity. These outcomes echo previous findings where internships improve workplace adaptability and operational efficiency (Kapareliotis et al., 2019; Bisschoff & Massyn, 2025).

Conversely, the analysis highlights several systemic challenges. The largest among these is the skill and knowledge gap (17.33%), which resonates with Singh and Sharma (2021), who identified India's persistent mismatch between education and industry requirements. Equally pressing are cost implications (13.91%) and error rates from inexperience (12.33%), which directly affects organizational sustainability, particularly in SMEs and export-oriented industries such as textiles and leather in Tamil Nadu. Moreover, confidentiality and security concerns (10.15%) are particularly significant in IT/ITES settings where remote internships are expanding (Narayanan & Olk, 2021). Finally, short internship durations (6.86%) disrupt project continuity, affirming Lan's (2021) call for longer and structured placements.

Table 4: Positive and Negative Outcomes of Internships (EFA Results, N = 418)

Positive Outcomes	Negative Outcomes
Internship Impact on Productivity – Faster operations, improved quality, and better deadline adherence (Explains 19.33% variance).	**Supervisory & Administrative Burden** – Excess time on monitoring and admin tasks reduces managerial efficiency (15.38%).
Workplace Culture Integration – Smooth cultural fit and teamwork enhance collaboration (4.36%).	**Skill & Knowledge Gaps** – Deficiencies in technical, industry, and communication skills hinder task execution (17.33%).
Role Clarity & Task Definition – Clear roles reduce confusion and improve task efficiency (0.35%).	**Resource & Cost Implications** – Training, stipends, infrastructure, and hidden costs add financial strain (13.91%).
Source: Primary Data (EFA Results)	**Error Rates from Inexperience** – Increased rework and quality concerns due to inaccuracy (12.33%).
	Confidentiality & Data Security Risks – Data leaks and IP concerns, especially in remote/hybrid internships (10.15%).
	Short Tenure & Knowledge Transfer Issues – Frequent on boarding disrupts project continuity (6.86%).

Source: *Primary Data*

Overall, the EFA underscores that internships are double-edged: while they improve productivity and workplace alignment, they simultaneously burden supervisors, increase operational risks, and expose organizations to data and cost challenges. This nuanced outcome highlights the need for quality-focused HR frameworks in Tamil Nadu's internship ecosystem.

Table 5: Results of Hypothesis Test's With Exact Statements (N = 418)

Hypothesis	Analysis Used	Key Statistical Insights	Decision
H01: Internships do not significantly improve core work efficiency and operational impact in organizations.	One-sample t-test	M = 4.12, SD = 0.63; t(417) = 22.13, p < .001; d = 1.08	**Reject H01** ? Interns significantly improve efficiency
H02: There is no significant difference in skill and knowledge gaps reported across different industry sectors.	One-way ANOVA + Tukey HSD	F(11,406) = 6.47, p < .001, η^2 = 0.15; Manufacturing > IT (ΔM = 0.60, p < .001)	**Reject H02** ? Sectoral differences exist
H03: Supervisory and administrative burden is not significantly affected by hosting interns.	Pearson correlation	r = 0.521, p < .001 ? Strong positive link	**Reject H03** ? Supervisory burden increases
H04: Resource and cost implications of hosting interns are not significantly different from neutral levels.	One-sample t-test	M = 3.73, SD = 0.58; t(417) = 9.78, p < .001; d = 0.48	**Reject H04** ? Costs significantly above neutral
H05: Intern inexperience does not significantly predict error rates in organizational tasks.	Linear regression	R^2 = 0.343, F(1,416) = 216.69, p < .001, β = 0.586	**Reject H05** ? Inexperience predicts error rates
H06: Confidentiality and data security concerns do not significantly differ by internship mode (on-site, hybrid, remote).	Chi-square test	χ^2(4, N = 418) = 15.84, p < .001, Cramér's V = 0.19	**Reject H06** ? Mode influences confidentiality concerns
H07: Internship tenure does not significantly affect project continuity.	One-way ANOVA + Tukey HSD	F(2,415) = 10.83, p < .001, η^2 = 0.05; <1 month vs. >3 months (ΔM = –0.55, p < .001)	**Reject H07** ? Longer tenure improves continuity
H08: Workplace integration and culture fit do not significantly affect team efficiency.	Correlation + Regression	r = 0.490, p < .001; β = 0.47, R^2 = 0.240, F(1,416) = 104.24, p < .001	**Reject H08** ? Integration significantly predicts efficiency
H09: Role clarity and task definition do not significantly improve team efficiency.	Pearson correlation	r = 0.514, p < .001, R^2 = 0.264, CI(95%) = 0.452–0.572	**Reject H09** ? Role clarity improves team efficiency

Source: *Primary Data*

The testing of hypotheses in this study presents a nuanced picture: while internships yield measurable benefits in organizational efficiency, skill development, and employability, they also impose significant **secondary costs and risks** that cannot be overlooked. The following discussion integrates both perspectives.

- For **H_{01}** , the results confirmed that interns significantly improve organizational efficiency and operational impact (M = 4.12; t (417) = 22.13, p < .001; d = 1.08). Interns helped accelerate task completion and supported routine operations, echoing earlier findings by Gault et al. (2018). However, this gain is not without hidden trade-offs. Supervisors often reported that the efficiency generated was "situational" and dependent on continuous guidance, meaning that once supervision was withdrawn, efficiency

dropped. This indicates a fragile form of productivity short-term gains that risk masking longer-term inefficiencies caused by supervisory dependence.

- For **H02** , sectoral analysis showed significant variation in skill and knowledge gaps ($F(11,406) = 6.47$, $p < .001$). While IT and education sectors adapted well to interns, manufacturing and healthcare highlighted pronounced gaps. The positive interpretation is that sector-specific weaknesses are now visible, enabling targeted curriculum reform. The negative dimension, however, is that persistent skill mismatches increase organizational frustration and can stigmatize internships as "training burdens" rather than talent pipelines (Singh & Sharma, 2021). This effect is particularly pronounced in Tamil Nadu's automotive hubs and hospital networks, where precise technical or compliance skills are non-negotiable, meaning that inadequately prepared interns risk creating bottlenecks rather than alleviating them.
- For **H03**, supervisory and administrative burden was strongly correlated with internship hosting ($r = 0.521$, $p < .001$). On one hand, structured supervision enhances learning (Lan, 2021), but the negative implication is considerable role strain on HR managers and line supervisors. Many respondents in SMEs noted that mentoring interns diverted up to 30–40% of their productive time from primary tasks. This diversion not only reduced organizational efficiency but also caused resentment among staff, who perceived intern supervision as "extra work without recognition." Over time, such strain risks discouraging organizations from continuing structured internship programs, a trend also observed in Pradhan's (2022) HR-based evaluations of Indian internship schemes.
- For **H04** , findings indicated that the resource and cost implications of internships are significantly above neutral ($M = 3.73$; $t(417) = 9.78$, $p < .001$). While large firms may absorb these costs as an investment, SMEs dominant in Tamil Nadu's economy struggle disproportionately. Stipends, infrastructure, and training costs often outweighed the interns' short-term contributions, with several HRs reporting that internships operated at a "loss" in financial terms. This negative dimension highlights an equity issue: only well-capitalized firms can afford to sustain internships as structured programs, while smaller firms, despite needing talent pipelines, cannot bear the recurring financial strain (Padhy, 2013).
- The results for **H05** showed that inexperience significantly predicts error rates ($R^2 = 0.343$; $F(1,416) = 216.69$, $p < .001$; $\hat{a} = 0.586$). While interns benefit from learning through mistakes (Andrews & Higson, 2019), the negative implication is that errors directly translate into quality control risks, client dissatisfaction, and reputational damage. In Tamil Nadu's export industries textiles, leather, and precision manufacturing even a small proportion of intern-driven errors could lead to cancelled international orders. Thus, while internships improve employability in the long run, in the short term they may jeopardize competitiveness for sectors operating under strict quality certifications.
- For **H06**, results demonstrated that confidentiality and data security concerns varied by internship mode ($÷^2 (4, N = 418) = 15.84$, $p < .001$; Cramér's $V = 0.19$). Remote internships, though increasing inclusivity and accessibility, magnified risks of data leakage and intellectual property theft (Narayanan & Olk, 2021). Many HR respondents explicitly noted that interns accessed sensitive client information without the same accountability measures applied to employees. Thus, the negative implication is systemic vulnerability, where organizational trust and digital security are strained in hybrid/remote formats an especially critical concern for Tamil Nadu's

IT and BFSI sectors in Chennai and Coimbatore.

- The seventh hypothesis **(H_{07})** revealed that internship tenure significantly influences project continuity ($F(2,415) = 10.83, p < .001$). While longer tenures (>3 months) supported smoother handovers, short internships (<1 month) created repeated disruptions. The negative implication here is institutional: many Tamil Nadu universities continue to enforce short internship modules (4–6 weeks), which misaligns with organizational needs. HR managers described this as "revolving door inefficiency", where constant on boarding and off boarding drained time and undermined long-term projects. Thus, academic requirements inadvertently reduce the organizational value of internships, limiting their credibility as workforce preparation mechanisms.
- For **H_{08}** , workplace integration and culture fit significantly predicted team efficiency ($R^2 = 0.240$; $F(1,416) = 104.24, p < .001$). Positive integration enhanced collaboration and morale (Succi &Canovi, 2020), but the negative dimension is equally important: cultural mismatches created resistance among permanent employees. In traditional Tamil Nadu SMEs, interns unfamiliar with localized workplace norms were perceived as disruptive, which sometimes led to tensions and lowered team morale. Rather than being absorbed into the organizational culture, interns risked becoming **outsiders**, slowing down workflow and raising turnover risks.
- Finally, **H_{09}** confirmed that role clarity and task definition significantly improve efficiency ($r = 0.514, p < .001; R^2 = 0.264$). Yet the negative implication is that role ambiguity remains widespread in smaller organizations and NGOs, where formal structures are weak. Respondents from such organizations highlighted frequent confusion over reporting lines and intern responsibilities. This ambiguity not only reduced efficiency but also frustrated interns, who left with poor impressions of organizational professionalism ultimately undermining the internship's reputational value (Bisschoff & Massyn, 2025).

Table 6: Garrett Ranking of Positive Benefits and Negative Challenges of Hosting Interns

Dimension	Sub-Factor	Statistical Evidence	Garrett Score	Rank
Positive Benefits	Improvement in core work efficiency & operational impact	$t(417) = 22.13, p < .001, d = 1.08$	82	1
	Enhanced team efficiency via role clarity	$r = 0.514, p < .001, R^2 = 0.264$	75	2
	Improved efficiency through workplace integration & culture fit	Regression: $\beta = 0.47, R^2 = 0.240, p < .001$	68	3
	Stronger project continuity with longer internship tenures	ANOVA: $F(2,415) = 10.83, p < .001$; Tukey $\Delta M = -0.55$	58	4
	Sector-specific skill contributions (healthcare, manufacturing)	ANOVA: $F(11,406) = 6.47, p < .001, \eta^2 = 0.15$	47	5
Negative Challenges	Increased supervisory and administrative burden	$r = 0.521, p < .001$	81	1
	Error rates from intern inexperience	Regression: $R^2 = 0.343, F(1,416) = 216.69, p < .001, \beta = 0.586$	74	2
	Resource and cost implications	$M = 3.73, SD = 0.58; t(417) = 9.78, p < .001, d = 0.48$	66	3
	Confidentiality & data security risks (esp. remote mode)	$\chi^2(4, N = 418) = 15.84, p < .001$, Cramér's $V = 0.19$	59	4
	Skill & knowledge gaps across sectors (esp. manufacturing, healthcare)	ANOVA: $F(11,406) = 6.47, p < .001, \eta^2 = 0.15$	52	5

Source: *Primary Data; Garrett's Ranking Technique adapted from Garrett & Woodworth (1969).*

The Garrett ranking results highlight the dual nature of internship outcomes, reflecting both substantial benefits and critical challenges for organizations in Tamil Nadu. Among the positive outcomes, the most significant benefit was the improvement in core work efficiency and operational impact (Garrett score = 82; $t(417) = 22.13$, $p < .001$, $d = 1.08$), consistent with Gault, Leach, and Duey (2018), who found internships to enhance organizational productivity. This was closely followed by enhanced team efficiency through role clarity (Garrett score = 75; $r = 0.514$, $p < .001$), affirming Kapareliotis, Voutsina, and Patsiotis (2019) who argued that clarity of roles directly improves work readiness. Similarly, workplace integration and culture fit contributed strongly (Garrett score = 68; $\beta = 0.47$, $R^2 = 0.240$, $p < .001$), aligning with Succi and Canovi (2020), who emphasized the importance of cultural assimilation for graduate employability. Moreover, longer internship tenures improved project continuity (Garrett score = 58; $F(2,415) = 10.83$, $p < .001$), addressing disruptions caused by short-term placements, a challenge noted in India's semester-based internship models. Finally, sector-specific skill contributions (Garrett score = 47; $F(11,406) = 6.47$, $p < .001$) were especially valuable in healthcare and manufacturing, reflecting Lan's (2021) findings on industry-specific training needs. However, these gains were offset by significant challenges. The foremost concern was the increased supervisory and administrative burden (Garrett score = 81; $r = 0.521$, $p < .001$), echoing Pradhan (2022), who noted that HR professionals face heightened mentoring pressures. A related challenge was the higher error rates linked to intern inexperience (Garrett score = 74; $R^2 = 0.343$, $F(1,416) = 216.69$, $p < .001$), consistent with Andrews and Higson (2019), who stressed the risks of skill mismatches in workplace performance. Resource and cost implications also ranked high (Garrett score = 66; $M = 3.73$, $p < .001$), aligning with Singh and Sharma (2021), who highlighted the financial strain internships impose on SMEs. Furthermore, confidentiality and data security risks (Garrett score = 59; $\chi^2(4, N = 418) = 15.84$, $p < .001$) were especially pronounced in remote internship modes, corroborating Narayanan and Olk's (2021) caution on virtual internships. Lastly, persistent skill and knowledge gaps across sectors (Garrett score = 52; $\eta^2 = 0.15$) reinforced the long-standing disconnect between academic curricula and industry requirements in India (Padhy, 2013). Overall, the findings underscore a paradoxical reality: while internships can enhance efficiency, skill development, and project continuity, they simultaneously create supervisory, financial, and security challenges. Addressing these tensions requires structured supervision frameworks, sector-aligned curricula, and stronger regulatory oversight to ensure internships translate into sustainable quality outcomes in Tamil Nadu's diverse industrial landscape.

Implication of the Study

The findings of this study hold significant implications for organizational practice, higher education policy, and theory in the domain of internship research. At the managerial level, the evidence that interns substantially improve operational efficiency ($t(417) = 22.13$, $p < .001$, $d = 1.08$) and team productivity via role clarity ($r = 0.514$, $p < .001$, $R^2 = 0.264$) suggests that organizations in Tamil Nadu can strategically leverage internships as a mechanism to augment workforce agility. However, the simultaneous increase in supervisory burden ($r = 0.521$, $p < .001$) and error rates due to inexperience ($\beta = 0.586$, $p < .001$) highlights the need for structured mentoring frameworks and pre-placement readiness training (Pradhan, 2022; Bisschoff&Massyn, 2025). Without such measures, the productivity benefits risk being offset by quality lapses, especially in sectors such as manufacturing and healthcare where technical accuracy is critical (Singh & Sharma, 2021).

From a policy perspective, the sectoral variation in skill gaps ($F(11,406) = 6.47$, $p < .001$, $\eta^2 = 0.15$), with manufacturing and healthcare reporting higher deficits than IT or education, underscores the urgency of aligning state-level internship policies with industry-specific requirements. Tamil Nadu, being a leading hub for automotive,

textiles, and healthcare services, requires curricula that incorporate sector-tailored modules, such as regulatory compliance in healthcare and automation training in engineering. This is consistent with calls in the Indian HRD literature for industry-ready education (Padhy, 2013) and echoes international findings that internships improve employability only when curricular and workplace expectations are aligned (Kapareliotis et al., 2019; Succi &Canovi, 2020). Policymakers, including AICTE and state universities, must therefore mandate longer internship durations (8–12 weeks) to avoid the continuity issues evidenced in this study ($\Delta M = -0.55$, $p < .001$ between <1 month and >3 months internships).

The findings also raise implications for digital internship governance. Data security and confidentiality concerns, particularly acute in remote internships (χ^2 (4, N = 418) = 15.84, $p < .001$), resonate with global concerns about the risks of virtual internships (Narayanan & Olk, 2021). For Tamil Nadu's IT/ITES sector, where hybrid internship models are expanding, quality assurance will require structured data-access policies, enhanced use of NDAs, and digital literacy training for interns. This aligns with the state's growing focus on IT policy reforms and the necessity to build trust in hybrid internship models (Lan, 2021).

Finally, at the theoretical level, the study extends the ongoing debates on the relative importance of soft skills versus technical skills in employability (Andrews & Higson, 2019; Jackson & Collings, 2018). The results demonstrate that while interns contribute positively through cultural fit and integration ($\beta = 0.47$, $R^2 = 0.240$, $p < .001$), their lack of technical readiness leads to costly errors. This duality reinforces the argument that employability frameworks must integrate both soft skills and sectoral competencies to generate sustainable outcomes (Gault et al., 2018; Bisschoff&Massyn, 2025). By empirically demonstrating these trades-offs in the Tamil Nadu context, the present study provides a nuanced understanding of how internships function as both value-adding and risk-inducing mechanisms within organizations.

Conclusion

This study offers a comprehensive, evidence-based account of how student internships simultaneously generate benefits and challenges for organizations in Tamil Nadu. Drawing on responses from 418 HR managers and training facilitators across 11 industry sectors, the results underscore the dual nature of internships as both a strategic resource for productivity enhancement and a source of operational strain. Statistically, the findings confirmed that interns significantly improve organizational efficiency ($M = 4.12$; $t(417) = 22.13$, $p < .001$, $d = 1.08$), with role clarity ($r = 0.514$, $p < .001$; $R^2 = 0.264$) and cultural integration ($\beta = 0.47$, $R^2 = 0.240$, $p < .001$) emerging as key predictors of team productivity. Longer internship tenures were also positively associated with project continuity ($F(2,415) = 10.83$, $p < .001$), highlighting the importance of sustained placements for minimizing disruptions. These positive outcomes align with prior evidence that internships accelerate learning, foster workplace adaptability, and enhance operational outcomes.

However, the study also revealed systemic challenges. Supervisory and administrative burden showed a strong correlation with internship hosting ($r = 0.521$, $p < .001$), with many respondents reporting diversion of significant managerial time. Intern inexperience strongly predicted error rates ($\beta = 0.586$, $p < .001$; $R^2 = 0.343$), leading to quality control risks, particularly in export-oriented and compliance-heavy sectors. Resource and cost implications were significantly above neutral ($M = 3.73$; $t(417) = 9.78$, $p < .001$), indicating that SMEs bear disproportionate financial strain compared to larger firms. Furthermore, confidentiality and data security concerns varied significantly by internship mode (χ^2 (4, N = 418) = 15.84, $p < .001$; Cramér's V = 0.19), with remote and hybrid internships amplifying vulnerabilities.

The Exploratory Factor Analysis confirmed a nine-factor structure explaining 88.43% of the total

variance, with strong construct reliability (all Cronbach's $\alpha > 0.80$) and excellent sampling adequacy (KMO = 0.921; Bartlett's $\chi^2 = 6458.23$, $p < .001$). Garrett ranking analysis further demonstrated that while operational efficiency (Garrett score = 82) and team productivity (75) were the most valued benefits, supervisory burden (81) and error rates (74) were the most pressing challenges. These results collectively reveal a paradox: internships deliver measurable organizational gains but often at the cost of supervisory strain, financial investment, and security risks.

From a policy and practice perspective, the findings emphasize the need for structured supervision frameworks, sector-specific curricular reforms, and regulatory guidelines on internship duration. Universities must reconsider the prevalent 4–6 week internship models, which were found to disrupt continuity ($\Delta M = -0.55$, $p < .001$ between <1 month and >3 months placements). At the same time, organizations particularly SMEs require cost-sharing mechanisms and digital governance protocols to sustain hybrid and remote internships without jeopardizing data security. Theoretically, the study extends internship research by shifting the lens from student employability to organizational realities, offering a dual-impact model that integrates both benefits and risks. It validates prior assertions that employability frameworks must balance soft skills (integration, communication) with technical competencies (compliance, precision) to yield sustainable outcomes.

In final, internships remain an indispensable bridge between academia and industry, their effectiveness depends on careful alignment between organizational needs, academic structures, and governance frameworks. By empirically capturing the nuanced perspectives of HR managers and training facilitators, this study provides actionable insights for policymakers, educators, and practitioners to design more resilient and mutually beneficial internship ecosystems in Tamil Nadu and beyond.

Scope for Future Research

1. 1. Due to a lack of direction in internship organisation and a growing disconnect between what students know and what employers expect, universities are struggling to prepare students for the workforce within a changing environment.
2. This study examines internship experiences along the following axes: the organisation of internships, the gap between student skills and industry expectations, student awareness of industry expectations, and the allocation of responsibility for work readiness.
3. The move toward remote work has also led to virtual internships, which offer a fertile ground for studying the efficacy, and challenges, of these digital platforms for skill-building and involvement in organisations.
4. Structured collaboration models, such as industry–academia councils, apprenticeship frameworks and co-designed curricula, can enhance the quality of internships and students' levels of preparedness.
5. Future studies may explore how government policies, institutional guidelines and quality assurance mechanisms influence the design, implementation and evaluation of internship programmes..

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