EXPLORING THE ROLE OF INTERNSHIP IN MAKING VOCATIONAL STUDENTS JOB READY AT THANE DISTRICT, MAHARASHTRA

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Abstract : Internships are widely promoted as a means of improving the employability and entrepreneurial readiness of vocational students, yet student-level evidence from Thane District remains scarce. This study examines the effectiveness of internship programs among vocational students enrolled in Industrial Training Institutes (ITIs) in Thane District, Maharashtra. A descriptive, cross-sectional quantitative design grounded in experiential learning theory was adopted, and a structured questionnaire was administered to a purposive sample of 50 ITI students who had completed at least one internship. Three objectives were addressed: the influence of internships on employable skill development, the structural and financial barriers to meaningful internship access, and the role of institutional support in shaping internship outcomes and creating a more inclusive and supportive technical education environment for vocational students. Descriptive statistics was employed to analyse the survey responses. For each Likert-scale item, response frequencies and percentage distributions across the five response categories were computed. A three-tier framework addressing financial equity, curriculum-industry partnership and institutional capacity was explored. The findings provide preliminary, student-level evidence with regard to role of Internship and industry in providing effective vocational training. The study found that all respondents strongly agreed to the fact that internship played a major role in effective learning and application of technical skills, and improved job confidence amongst vocational learners. The study revealed a financial access paradox amongst students with 86 percent of them strongly agreeing to the fact that the internship stipend though provided, was insufficient to cover their basic expenses. Lack of industry contacts was a major barrier to securing proper training (94% agreement), and poor alignment between internships and the ITI curriculum was a source of dissatisfaction for 72% of students. Institutional support was broadly adequate, with 100% reporting access to industry visits and 94% reporting an inclusive learning environment. However, inadequate industrial training facility accessibility and organisational resource provision were the weakest items (24% agreement each) in preparing students for work. The findings indicate that internships positively contribute to technical skill application, workplace confidence, and job readiness among ITI students. However, inadequate stipend levels, limited industry contacts, and resource constraints remain significant barriers to maximizing internship effectiveness and making vocational students job ready.

Index Terms - Employability Skills, Entrepreneurship, Experiential Learning, Institutional Support, Internship Effectiveness, Skill Development, Thane District, ITI, Vocational Education, India.

I. INTRODUCTION

A. Background and Context

The rapid transformation of India's industrial landscape has intensified the need for stronger alignment between vocational curriculum and practical field experience, addressing persistent skill mismatches that continue to undermine graduate employability [1]. In response, the National Education Policy (NEP) 2020 mandated internships as an integral pedagogical tool intended to translate theoretical knowledge into actionable industry competencies [2]. Internship programs in Vocational Education and Training (VET) institutions, including Industrial Training Institutes (ITIs), have been widely recognised as strategic mechanisms for bridging the gap between education and employment [3].

Thane District, a rapidly growing hub of manufacturing and service sector activity in Maharashtra, exemplifies both the promise and the challenge of vocational education. Experiential learning in this region is pivotal for converting vocational education into sustained career readiness and entrepreneurial capacity [4], and the link between vocational training and entrepreneurship development in the district's industrial corridor has been highlighted in earlier work [5]. Empirical evidence increasingly suggests that structured internships mitigate technical skill deficits and enhance the professional self-assurance necessary for workforce entry [6].

Employability, understood as the combination of technical competence, transferable skills and personal attributes that enables entry and progression in work, and entrepreneurship, understood as the capacity to recognise opportunities and create economic value, are increasingly treated as complementary outcomes of vocational education, particularly in economies characterised by limited formal-sector employment [7, 8]. Internships occupy a distinctive position in this respect because they expose learners to authentic workplace routines, professional networks and business operations that classroom instruction alone cannot replicate [9].

B. Problem Statement

The implementation of internship mandates introduced under the National Education Policy (NEP) 2020 faces critical operational hurdles that impede their effectiveness in making vocational students job-ready. While structured experiential learning is theoretically positioned to bridge the gap between classroom instruction and industrial demands, significant regional and institutional disparities persist. In rapidly growing manufacturing and service hubs like Thane District, Maharashtra, the vocational education system encounters structural challenges, including uneven institutional capacity to forge high-quality industry partnerships and a lack of formalized, streamlined placement pipelines. This often results in a mismatch between available internship profiles and the core technical curriculum of Industrial Training Institutes (ITIs).

Despite a substantial global body of literature on vocational internship programs, systematic empirical evidence focusing on student-level job-readiness outcomes within the specific socio-economic fabric of Maharashtra remains limited. Policy-focused studies in the state have historically documented macroeconomic challenges such as regulatory fragmentation and the absence of vertical mobility pathways, but they fail to capture how students directly experience the quality of their workplace immersion. Furthermore, while administrative mechanisms emphasize the formal compliance of stipend distribution, there is a severe shortage of research evaluating stipend adequacy. It remains unquantified how the financial strain of travel, lodging, and daily commuting expenses impacts lower-socioeconomic cohorts, potentially transforming mandatory placements into regressive entry barriers rather than equitable professional pathways.

Consequently, there is an urgent need to shift from macroscopic policy evaluations to localized, empirically grounded investigations. Without a granular understanding of how regional industry clusters, financial constraints, and varying levels of institutional lab infrastructure intersect to shape student competence and job confidence, policymakers and institutional leaders lack the evidence required to optimize internship structures. This study directly addresses these systemic ambiguities by analyzing the practical constraints and developmental outcomes of ITI students within the unique industrial corridor of Thane District.

C. Purpose and Contribution

This study addresses this critical gap by providing empirical, student-level evidence of internship effectiveness as a driver of employability and skill development among ITI students in Thane District. Three interrelated research objectives guide the investigation: (1) to assess the influence of structured internship experiences on employability skill development; (2) to identify structural, financial and institutional barriers limiting access to quality internships; and (3) to evaluate the role of institutional support mechanisms in shaping inclusive and supportive technical education environments.

By situating the findings within Thane's specific industrial corridor, the study contributes contextually grounded evidence to inform curriculum design, policy development and industry collaboration in vocational education. Three contributions are offered: (a) a student-level empirical baseline for a district that has received little dedicated research attention; (b) an analytical distinction between the formal provision of a stipend and its lived financial adequacy; and (c) a stakeholder-specific framework that translates the evidence into differentiated actions for policymakers, institutions and industry.

II. LITERATURE REVIEW

A. Experiential Learning as a Pedagogical Paradigm

The theoretical foundation of internship-based learning rests on Kolb (1984) experiential learning theory, which posits that knowledge is constructed through a cyclical process of concrete experience, reflective observation, abstract conceptualisation and active experimentation [10]. Within VET contexts, internships provide the concrete experiences necessary for deep learning, while institutional mechanisms such as supervisor feedback and structured reflection facilitate the transformation of experience into occupational competence [11, 12]. Hussain, et al. (2021) extended this framework by demonstrating that institutional mechanisms, particularly supervisor feedback and structured reflection, significantly moderate the relationship between internship participation and occupational competence development, a finding with direct implications for VET program design in Maharashtra, where the quality of internship supervision varies considerably across institutions and industry partners.

The alignment of vocational education with industrial requirements has been conceptualised through the "link and match" framework, which positions structured experiential learning as a fundamental strategy for harmonising curricular outcomes with labour market needs [9]. This framework emphasises the integration of experiential learning to cultivate both technical and entrepreneurial competencies, recognising that classroom instruction alone is insufficient for developing the multifaceted capabilities required in contemporary workplaces.

B. The Link and Match Paradigm in the Indian Context

The "link and match" paradigm assumes particular salience in the Indian VET context, where persistent mismatches between graduate competencies and employer expectations have been extensively documented. In a seminal analysis of Maharashtra's vocational education system, Mujumdar (2012) identified fragmentation, the absence of a single regulatory body and a lack of vertical mobility as structural factors that consistently undermine the effectiveness of well-intentioned internship schemes [13].

A systematic review of eleven empirical studies across eight countries found that well-designed internship programs consistently strengthen soft skills, particularly communication, teamwork, adaptability and professional attitudes, while technical skill development showed more uneven outcomes [14]. The review concluded that program quality, encompassing supervision quality, faculty support, institutional-industry coordination and pedagogical design, influences outcomes more strongly than individual student characteristics, a consideration central to the Thane District context, where institutional capacity varies markedly across vocational training providers.

C. Employability Skill Development through Internship Participation

A growing body of empirical research identifies four psychological and pedagogical mechanisms through which internships facilitate employability skill development: self-efficacy development, career clarity enhancement, learning transfer facilitation and practical engagement promotion [14]. Self-efficacy, defined as an individual's belief in the capability to execute the courses of action required to manage prospective situations [15], represents a particularly significant mechanism. Okolie (2022) demonstrated that workplace learning self-efficacy significantly predicted employment readiness among VET graduates, accounting for 16.1% of the variance in work-readiness outcomes [16].

Career clarity enhancement constitutes a second important mechanism. Yunus, et al. (2021) found that training design influenced learning transfer more strongly than trainee characteristics, suggesting that program structure matters more than student attributes [17]. This is a finding of particular relevance for equity-focused VET interventions in Maharashtra. Contemporary VET internships must additionally develop comprehensive skill portfolios encompassing technical proficiency, soft skills, problem-solving capabilities, career management competencies and Industry 4.0 readiness [18]. Eight of the eleven studies in the review by Harun, et al. (2026) emphasised soft skills alongside technical abilities, confirming that narrow technical training models inadequately prepare graduates for modern workplaces demanding integrated competencies [14]. The measurement of such outcomes through well-defined employability indicators remains an active concern in the wider literature [19].

D. Entrepreneurship Education and the Cultivation of Business Acumen

Beyond conventional employability, entrepreneurship has emerged as a critical outcome of VET programs, particularly in economies characterised by limited formal-sector employment opportunities. The literature

consistently identifies the integration of entrepreneurship education within VET curricula as essential for fostering the business-creation capabilities necessary for economic self-sufficiency and job creation [7, 8]. Wati, et al. (2025) argue that fostering entrepreneurial independence requires intentional mentorship programs that move beyond task execution to focus on innovation, market-driven problem-solving and risk assessment [20]. Entrepreneurship therefore cannot be treated as an incidental outcome of internship participation; it requires deliberate pedagogical design and sustained mentorship support.

The emergence of Industry 5.0, characterised by the integration of digital technologies with human-centred approaches, has created new opportunities and challenges for entrepreneurship education in VET. Integrating modules focused on digital entrepreneurship and social enterprise allows students to synthesise their technical training with broader economic realities [21]. Malhotra, et al. (2023) emphasise the importance of developing an entrepreneurial ecosystem that connects students with seasoned mentors to foster both experiential learning and the strategic risk-taking required for market entry [22]. Internships may contribute to entrepreneurial development through several pathways: exposure to business operations, understanding of market dynamics, development of professional networks, opportunity recognition and enhanced self-efficacy [23, 9]. The integration of "dual-teacher" models, where industry professionals and academic faculty jointly lead training, has proven effective in bridging the divide between theoretical knowledge and practical business application [24], and models such as the "Teaching Factory" can serve as a conduit for entrepreneurial exposure by providing a real-world manufacturing context that facilitates deeper collaboration between educators and industry partners [25].

E. Structural Barriers to Meaningful Internship Access

The limitations of internship programs are often rooted in systemic structural challenges rather than individual student deficiencies. Weak coordination between educational institutions and industry partners, coupled with poorly articulated internship objectives, frequently confines the student experience to routine operational tasks [26]. In the Maharashtra context, persistent fragmentation of the vocational education system, the absence of a single regulatory body and a lack of vertical mobility have been shown to undermine well-intentioned internship schemes [13].

Financial barriers represent particularly significant access constraints for students from lower socioeconomic backgrounds. The absence of adequate stipend support forces students to choose between internship participation and immediate income-generating work, creating structural inequities that disproportionately disadvantage marginalised communities. Selladurai & Priyadharshini (2024) advocate leveraging Corporate Social Responsibility (CSR) initiatives as a mechanism to facilitate value-added training that extends professional opportunities to marginalised student cohorts, including stipend funding and transportation support [27]. Geographic disparities compound these constraints: students in peri-urban and rural areas of Thane District may face limited access to quality industrial placements, and Rifai, et al. (2025) and Rusmiyati, et al. (2026) emphasise that addressing specific skill deficits and employability gaps in rapidly industrialising regions requires targeted interventions that account for local labour-market conditions rather than generic approaches developed for other contexts [28, 29].

F. Institutional Support, Mentorship and Inclusive Education

Institutional support mechanisms, encompassing industry partnerships, mentorship quality, infrastructure adequacy and inclusive policies, play a decisive role in shaping internship outcomes. Okolie (2022) demonstrated that faculty support moderated both the direct and indirect effects of internship experiences on work readiness, with students receiving high faculty support showing substantially stronger benefits, which suggests that faculty support acts as a multiplier rather than an additive factor [16]. Zakiyudin & Hasim (2025) emphasise that strengthening the synergy between regional industry clusters and vocational training centres can mitigate the pervasive perception issues that have historically undermined the social standing and career mobility of TVET graduates [30].

Beyond financial support, inclusive practices may include targeted recruitment, flexible scheduling, accessibility accommodations and culturally responsive mentorship [27]. Burkul, et al. (2025, 2026) emphasise the importance of establishing smart labs and collaborative training environments to facilitate the transition to Industry 4.0 competencies [31, 32]. Ensuring equitable access to such facilities requires deliberate institutional policies that allocate resources to support students from disadvantaged backgrounds, who may lack the prior exposure to digital technologies that facilitates rapid skill acquisition.

G. Research Gap

Despite the growing recognition of internships as an important component of vocational education and training (VET), significant gaps remain in the existing evidence regarding their effectiveness in preparing students for employment. Much of the available literature has been conducted in developed countries or Southeast Asian TVET systems, where institutional structures, labour markets, and internship frameworks differ considerably from the Indian vocational education context. Existing studies generally report positive outcomes in terms of skill development, workplace exposure, and employability; however, these findings cannot be directly generalized to Industrial Training Institutes (ITIs) operating within India's diverse socio-economic and industrial environments. Within India, the available literature is largely policy-oriented and focuses on systemic issues such as regulatory fragmentation, governance challenges, and vocational education reforms. Empirical studies examining internship effectiveness from the perspective of vocational students themselves remain limited, particularly within Maharashtra's ITI system. Furthermore, no recent study has been identified that specifically investigates internship experiences and job-readiness outcomes among ITI students in Thane District, a region characterized by a unique mix of manufacturing and service-sector industries.

A second limitation in the literature concerns the inadequate understanding of barriers that influence students' ability to benefit from internship opportunities. While studies acknowledge structural and institutional constraints, little empirical attention has been paid to the practical challenges faced by vocational students, particularly regarding financial adequacy of stipends, accessibility of internship opportunities, industry networking limitations, and curriculum alignment. The distinction between stipend receipt and stipend sufficiency remains particularly underexplored in the vocational education literature.

Although previous research highlights the importance of institutional support, mentorship, and industry collaboration in improving internship outcomes, there is limited evidence on how these support mechanisms operate within local ITI settings. Existing studies rarely examine students' perceptions of institutional inclusiveness, resource accessibility, mentorship quality, and industry engagement within a specific regional context.

Therefore, a clear research gap exists in understanding how internships contribute to making vocational students job-ready within the specific context of ITIs in Thane District, Maharashtra. There is a need for student-level empirical evidence examining the contribution of internships to employability skill development, the barriers affecting meaningful participation, and the institutional support mechanisms that influence internship outcomes. The present study seeks to address this gap by providing descriptive evidence from vocational students who have completed internship experiences in the region.

III. RESEARCH OBJECTIVES

The main objectives of the study are:

Objective 1 (Skill Development): To assess the influence of structured internships on the development of employability skills, including technical competencies, problem-solving abilities, real-world exposure and workplace communication, among vocational students of ITIs in Thane District, Maharashtra.

Objective 2 (Access Barriers): To identify the key structural, financial and institutional barriers that prevent vocational students in Thane District from accessing meaningful and quality internship opportunities.

Objective 3 (Institutional Support): To evaluate the role of institutional support mechanisms, encompassing industry partnerships, mentorship quality, infrastructure adequacy and inclusive policies, in shaping internship outcomes and creating a more inclusive and supportive technical education environment for vocational students in Thane District.

IV. METHODOLOGY

A. Research Design

This study employed a descriptive quantitative research design grounded in experiential learning theory [10]. A cross-sectional survey approach was adopted to capture students' perceptions of internship effectiveness, access barriers and institutional support at a single point in time. While cross-sectional designs preclude causal inference, they are appropriate for pilot studies aimed at establishing baseline patterns and identifying priority areas for future longitudinal investigations [14].

B. Sample and Sampling Procedure

A purposive sample of 50 vocational students enrolled in ITI programs in Thane District, Maharashtra, was recruited for this pilot study. Purposive sampling was employed to ensure that all respondents had completed at least one structured internship placement, thereby grounding survey responses in direct experience. The sample size, while modest, is consistent with pilot-study conventions and provides a basis for identifying preliminary patterns and generating hypotheses for subsequent large-scale investigations [33].

C. Instrument

A structured questionnaire comprising 30+ items was developed to measure the three research objectives. Thirty items were allocated to three thematic sections corresponding to the objectives, as summarised in Table 1. Response formats included 5-point Likert scales (1 = Strongly Disagree to 5 = Strongly Agree), frequency-based percentage scales and multiple-response categorical items. The items were adapted from instruments used in comparable VET studies, including those reviewed by Harun, et al. (2026), and modified to reflect the specific context of ITI education in Maharashtra [14].

TABLE 1: STRUCTURE OF THE QUESTIONNAIRE

Section	**Thematic Focus**	**Items**	**Number of Items**
A	Internship Experience and Skill Development	1-9, 26-28, 30-31	14
B	Challenges in Accessing Internships	10-16	7
C	Technical Education: Inclusivity and Institutional Support	17-25	9
Total	Items allocated to the three thematic sections		30

D. Data Collection

Survey data were collected via direct administration of the questionnaire to students at their respective Industrial Training Institutes (ITIs) within the Thane District. The data collection process yielded a high completion rate, with all 50 participants providing complete responses across the core Likert-scale items, resulting in zero missing data for these variables. For the categorical item evaluating the proportion of ITI skills utilised during the internship, 50 valid responses were recorded, accounting for a 100% response rate on this specific metric.

E. Data Analysis

Descriptive statistics were employed to analyse the survey responses. For each Likert-scale item, response frequencies and percentage distributions across the five response categories were computed. To summarize the overall direction of student sentiment, a Net Agreement percentage was derived for each item according to Equation (1). Because the sample size is small (n = 50), 95% confidence intervals for key proportions were computed using the Wilson score method, which provides superior performance over the standard normal approximation for small samples and for proportions near 0 or 1.

Categorical variables were similarly summarized using frequencies and percentages for presentation in tables and figures. As this study adopts a purely descriptive design, no inferential hypothesis tests were conducted.

$$\textit{Net Agreement (\%)} = \textit{Agree (\%)} + \textit{Strongly Agree (\%)} \quad (1)$$

V. RESULTS

A. Objective 1: Internship Experience and Employability Skill Development

Table 2 presents the percentage distribution of responses and Net Agreement metrics for the seven items measuring the influence of internship experiences on employability skill development. Net Agreement across these variables ranged from 86% to 100%, demonstrating a strong and broadly consistent positive perception of internship effectiveness for vocational skill development.

TABLE 2: DESCRIPTIVE STATISTICS FOR INTERNSHIP EXPERIENCE AND SKILL DEVELOPMENT (N = 50)

Survey Item No.	Statement	1 (SD)	2 (D)	3 (N)	4 (A)	5 (SA)	Net Agree (%)
1	Internship effectively allowed application of technical skills learned at ITI	0	0	0	90	10	100
6	Felt more confident and prepared for a full-time job after the internship	0	0	0	66	34	100
8	Objectives of the internship project were clear and relevant to training	0	0	0	34	66	100
9	Received adequate guidance and mentorship from industry professionals	0	0	0	46	54	100
26	Received regular and constructive feedback on the job performed	0	2	0	64	34	98
27	Tasks performed required application of ITI coursework knowledge	0	0	0	28	72	100
28	Was confident in independently handling the project	4	10	0	58	28	86

Note: 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly Agree (SA). Values in columns 1 to 5 represent the percentage of respondents (n = 50). Net Agree corresponds to the combined percentage of Agree and Strongly Agree responses.

The highest-rated single metric was the application of ITI coursework knowledge within assigned tasks, which secured unanimous agreement alongside the highest concentration of top-tier responses (72% Strongly Agree, 28% Agree; Net Agreement = 100%). The clarity and relevance of internship objectives (66% Strongly Agree; Net Agreement = 100%) and the quality of industry mentorship (54% Strongly Agree; Net Agreement = 100%) also attracted predominantly "Strongly Agree" ratings.

Unanimous positive consensus (Net Agreement = 100%) was recorded for both the practical application of technical skills (95% CI: 92.9% to 100.0%) and increased post-internship confidence regarding full-time employment. Conversely, confidence in independently handling the project recorded the lowest baseline in this section, yielding a Net Agreement of 86% (95% CI: 73.8% to 93.0%). Within this item, 14% of respondents actively disagreed or strongly disagreed, suggesting that while students overwhelmingly valued the programmatic experience, a meaningful minority did not yet feel fully autonomous during project execution.

The categorical items provided additional depth to the descriptive profile (Table 3). Of the 45 valid responses regarding the proportion of ITI technical skills utilized during the placement, 31 respondents (62.0% of the full sample; 68.9% of valid responses) reported utilizing 91–100% of their institutional skills. An additional 11 respondents (22.0% of the full sample; 24.4% of valid responses) reported utilizing 81–90% of their skills, demonstrating that 93.3% of valid responses indicated deployment of the large majority of ITI training in practical, real-world settings.

Regarding exposure to real-world industry practices, 76% reported "significant" exposure and 4% reported "extreme" exposure, combining for an 80% positive rate, whereas the remaining 20% reported "moderate" exposure; no respondents selected low or no exposure. On career-path relevance, 34% reported that 71–80% of their internship work was relevant to their desired career, 24% reported 61–70%, and a further 24% reported 81–90%, collectively clustering 82% of respondents within the 61–90% relevance band. This indicates a reasonable but improvable alignment between day-to-day internship tasks and long-term vocational aspirations.

TABLE 3: DISTRIBUTION OF CATEGORICAL ITEMS ON SKILL UTILISATION, EXPOSURE, AND CAREER RELEVANCE

Item	Response Category	Frequency (n)	Percentage (%)
Proportion of ITI skills utilised	71-80%	3	6
	81-90%	11	22
	91-100%	31	62
	No response	5	10
Exposure to real-world industry practices	Moderately	10	20
	Significantly	38	76
	Extremely	2	4
Career-path relevance of internship work	Below 50%	2	4
	51-60%	7	14
	61-70%	12	24
	71-80%	17	34
	81-90%	12	24

Note: Percentages are calculated relative to the full sample of (n = 50).

When asked to isolate the primary benefit developed during the placement, 48% of the sample identified direct exposure to the real-world work environment as the single most significant outcome. This was followed by problem-solving capabilities (22%), communication and interpersonal skills (14%), job-relevant technical skills (12%), and confidence/professional etiquette (4%), as illustrated in Figure 1. The primacy of workplace exposure over discrete skill acquisition suggests that the experiential dimension of internships—namely, immersive assimilation into authentic professional environments—constitutes the core value proposition for ITI students in Thane.

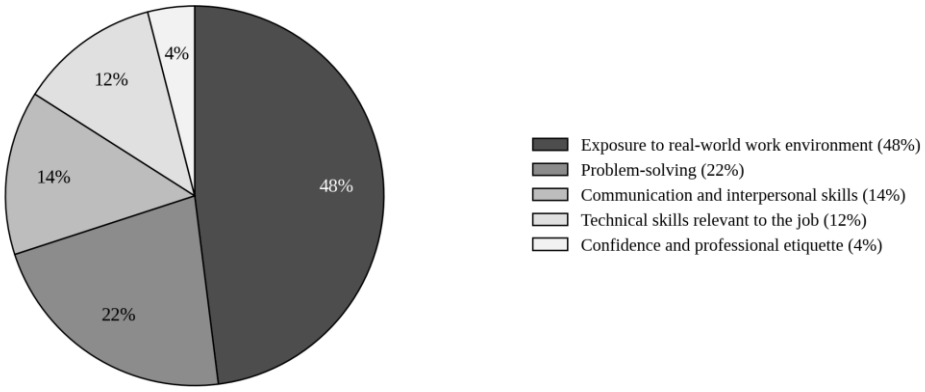


Figure 1: Primary Skill or Benefit Developed during Internship (Exposure to work environment: 48%; Problem-solving: 22%; Communication: 14%; Technical skills: 12%; Confidence/Etiquette: 4%; (n = 50).

Regarding the strongest perceived benefit of making ITI internships mandatory, 44% cited significantly improved job placement rates, 24% highlighted bridging the gap between theory and practice, 22% identified the development of essential soft skills, and 10% noted building a professional network, as broken down in Figure 2.

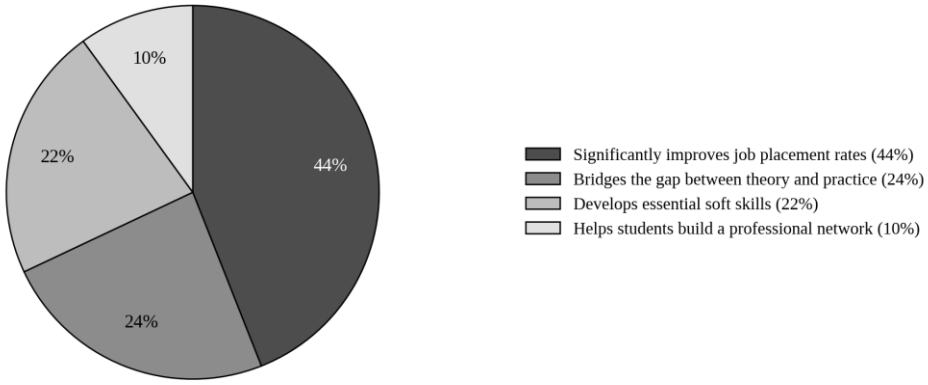


Figure 2: Strongest Perceived Benefit of Mandatory ITI Internships (Improves placement rates: 44%; Bridges theory/practice: 24%; Develops soft skills: 22%; Builds professional networks: 10%; (n = 50).

B. Objective 2: Challenges in Accessing Meaningful Internships

Table 4 presents the descriptive findings related to structural, financial, and institutional barriers to internship access. This objective revealed the most varied response patterns in the study, ranging from highly positive institutional support metrics to severe negative assessments regarding stipend adequacy.

TABLE 4: DESCRIPTIVE STATISTICS FOR CHALLENGES IN ACCESSING INTERNSHIPS (N = 50)

Item	Statement	1 (SD)	2 (D)	3 (N)	4 (A)	5 (SA)	Net Agree (%)
10	Internships are readily available for the specific trade or specialisation	2	4	0	70	24	94
12	Lack of industry contacts is a major barrier to finding an internship	4	2	0	54	40	94
13	Receive adequate career guidance from ITI faculty or staff	0	2	2	28	68	96
14	Available internships align well with the ITI curriculum	8	20	2	26	44	70
16	Stipend was sufficient to cover basic expenses	36	50	0	10	4	14

Note: For Item 12, higher agreement indicates a stronger perceived structural barrier.

TABLE 5: RECEIPT OF STIPEND DURING INTERNSHIP (N = 50)

Response Category	Frequency (n)	Percentage (%)
Yes, regularly throughout the internship	50	100
Yes, but only partially or irregularly	0	0
No, the internship was unpaid	0	0

Three distinct finding vectors emerged from this barrier analysis:

First, career guidance from ITI faculty and staff was evaluated very positively, reaching a Net Agreement of 96%, with 68% selecting "Strongly Agree" and 28% selecting "Agree." This demonstrates that internal institutional support pathways for navigating internship placements are robust and highly regarded within the sampled student population.

Second, the lack of external industry contacts was confirmed as a major barrier to internship access, securing a Net Agreement of 94% (95% CI: 83.8% to 97.9%). This barrier was validated by a substantial majority of the sample (54% Agree, 40% Strongly Agree), with only 6% actively disagreeing. This finding corroborates contemporary vocational literature identifying weak institutional-industry pipelines as a systemic barrier to equitable access, particularly for students without pre-existing family or professional networks.

Third, stipend sufficiency emerged as the most acute barrier identified in this study. While census-level compliance was recorded for stipend receipt, with 100% of the sample receiving a regular stipend during their placement (Table 5), an overwhelming 86% disagreed or strongly disagreed that the stipend was sufficient to cover basic expenses (50% Disagree, 36% Strongly Disagree; Net Agreement = 14%; 95% CI for the 86% disagreement: 73.8% to 93.0%), as shown in Figure 3. This highlights a critical structural paradox: while stipend receipt is universal, the financial adequacy of those stipends is profoundly deficient, presenting a clear target for regional policy reform.

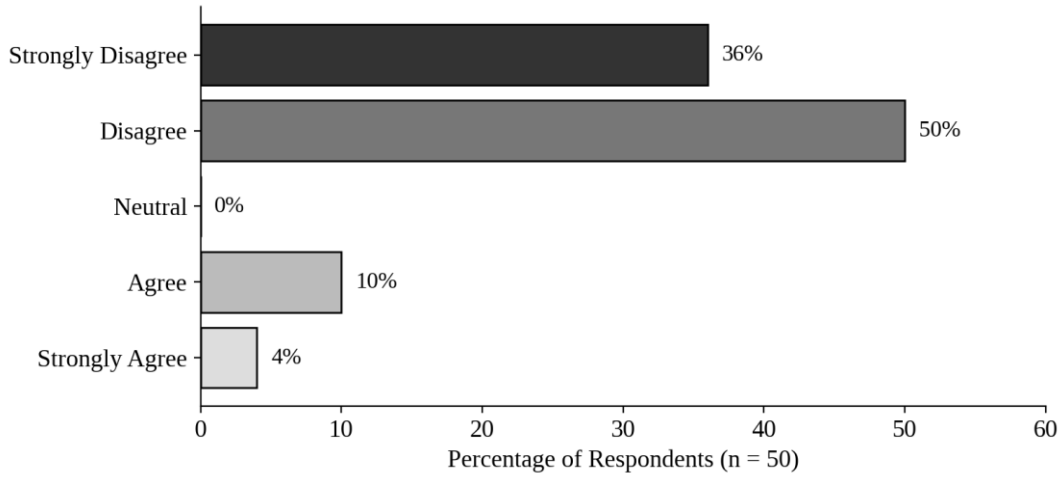


Figure 3: Responses on Stipend Sufficiency to Cover Basic Expenses (Strongly Disagree: 36%; Disagree: 50%; Neutral: 0%; Agree: 10%; Strongly Agree: 4%; (n = 50).

Finally, available internship alignment with the established ITI curriculum generated the most highly dispersed response pattern in the survey. A Net Agreement of 70% was offset by a notable 28% disagreement rate and 2% neutrality (95% CI: 56.2% to 80.9%). This statistical polarization suggests that curriculum alignment is experienced unequally across the student cohort, potentially reflecting differences in trade specializations or variations in industry partner sector quality.

C. Objective 3: Institutional Support for Inclusive and Supportive Technical Education

Table 6 summarizes the data regarding institutional support mechanisms and their effectiveness in fostering inclusive and supportive technical education environments. Net Agreement across these ten items ranged from 76% to 100%, indicating a positive baseline perception punctuated by specific infrastructural concerns.

TABLE 6: DESCRIPTIVE STATISTICS FOR INSTITUTIONAL SUPPORT AND INCLUSIVE EDUCATION (N = 50)

Item	Statement	1	2	3	4	5	Net Agree (%)
17	ITI provides an inclusive and supportive learning environment	0	4	2	42	52	94
18	Observed ITI-industry partnerships supporting internships	0	14	6	56	24	80
19	Underrepresented groups receive equitable support	4	10	6	66	14	80
20	Opportunities to visit or interact with industries during training	0	0	0	42	58	100
21	ITI or industry partner offers mentorship programs	0	6	0	74	20	94
22	Industries should be involved in designing ITI training programs	0	6	0	74	20	94
23	Industries should provide stipends, transport and accommodation	0	0	0	90	10	100
24	Facilities (labs, tools, digital access) are accessible for all students	10	14	0	44	32	76
25	Mentor provided encouragement and support during challenging tasks	0	6	4	36	54	90
30	Organisation provided proper resources for work	10	14	0	48	28	76

Structured opportunities for industrial site visits (Net Agreement = 100%, with 58% strongly Agree) and the policy stance that corporate hosts should provide comprehensive stipends, transport, and accommodation (Net Agreement = 100%, with 90% Agree) both achieved unanimous positive consensus. These findings indicate that initial experiential contact points are structurally well-established within Thane ITIs, and that students hold a unanimous mandate for expanding corporate co-investment in their logistical support.

General perceptions of institutional inclusivity (94% Net Agreement) and supervisor encouragement (90% Net Agreement) were also highly favorable. In contrast, on-campus facility accessibility (Net Agreement = 76%; 95% CI: 62.6% to 85.7%) and corporate host resource provision (Net Agreement = 76%) tied for the lowest positive scores within this objective. Both items recorded a 24% active dissatisfaction rate (comprising 10% Strongly Disagree and 14% Disagree).

These parallel statistics expose resource availability bottlenecks occurring both within the academic institution and inside the host organizations. Furthermore, the item tracking equitable support for underrepresented groups yielded a moderate Net Agreement of 80% against 14% disagreement, confirming that while broader inclusive environment indicators remain strong, target-specific equity mechanisms require further operational reinforcement.

D.Summary of Key Findings

Table 7 consolidates the empirical findings across all three core research objectives, framing the core evidence within the newly adopted non-parametric baseline.

TABLE 7: SUMMARY OF KEY FINDINGS BY OBJECTIVE

Objective	Key Finding	Evidence
Objective 1	Unanimous agreement on technical skill translation, job readiness, coursework integration, and core mentorship quality	Table 2; 100% Net Agreement across items 1, 6, 8, 9, and 27.
Objective 1	Real-world environment exposure identified as the premier value driver; individual project autonomy marked as the primary area for growth.	Figure 1 (48% primary mode selection); Table 2 (86% lowest relative Net Agreement).
Objective 2	Financial access paradox: universal programmatic stipend compliance paired with severe, widespread adequacy deficits.	Table 5 (100% regular receipt); Table 4 (86% combined Disagree/Strongly Disagree).
Objective 2	Industry connection deficits verified as a key structural barrier; training-to-placement curriculum alignment emerges as highly polarized.	Table 4 (94% Net Agreement on barrier item 12; 28% total disagreement on alignment item 14).
Objective 3	Highly rated interpersonal, mentoring, and pre-placement institutional contact mechanisms.	Table 6 (90% to 100% Net Agreement bounds on items 17, 20, 21, 22, 23, and 25).
Objective 3	Parallel resource deficiencies exposed across both institutional labs and host workplace infrastructures.	Table 6 (Identical 76% Net Agreement and 24% total dissatisfaction rates on items 24 and 30).

VI. DISCUSSION

A. Employability Skill Development through Internship

The empirical findings for Objective 1 provide strong evidence that structured internship programmes contribute significantly to employability skill development among ITI students in Thane District. The 100% net agreement regarding the integration of coursework with workplace tasks and the application of technical skills strongly supports experiential learning models, which emphasise the importance of internships in transforming theoretical classroom knowledge into practical technical competence [10, 12].

Notably, 48% of students identified exposure to the real-world work environment as the primary benefit of their internships. This finding highlights an important conceptual distinction between the acquisition of task-specific skills and broader experiential learning. As Harun et al. (2026) observed, internships do not merely develop isolated technical competencies; they also operate through psychological mechanisms that strengthen students' self-efficacy and improve their understanding of career pathways through authentic professional engagement. This interpretation is further supported by the categorical findings, which indicates that 80% of respondents experienced significant to extensive exposure to industrial operations. Thus, the internships appear to have functioned as meaningful learning environments rather than as placements limited to routine administrative or compliance-related activities.

The unanimous agreement regarding increased post-internship confidence and job readiness further supports contemporary vocational education frameworks, which suggest that workplace self-efficacy is an important predictor of future employment outcomes [16]. Similarly, the strong endorsement of mentorship quality—reflected in 100% net agreement, including 54% who selected "strongly agree"—reinforces the findings of Dubeau and Chochard [34] and Thapa et al. [35]. These studies identify proactive and structured workplace supervision as a central mechanism through which vocational training is translated into occupational competence.

However, the comparatively lower level of agreement regarding students' ability to manage projects independently warrants attention. Although the item still recorded 86% net agreement, the remaining 14% indicates a measurable gap in the development of professional autonomy. This finding suggests that internships are effective in promoting initial skill application and workplace adaptation, however additional curricular and supervisory interventions may be required to strengthen independent decision-making, project ownership, and higher-order problem-solving skills.

B. Structural, Institutional, and Financial Barriers to Access

The findings for Objective 2 reveal a complex set of operational challenges affecting students' transition from vocational education to employment. The most significant finding concerns the financial-access paradox. Although regional compliance mechanisms appear to have ensured a 100% rate of regular stipend distribution, 86% of students reported that the stipend was insufficient to cover basic living and transportation expenses.

This discrepancy transforms the stipend from a supportive resource into a potential financial barrier. In practice, students from economically disadvantaged households may be unable to participate fully in internships when the associated costs of travel, food, accommodation, and other daily expenses exceed the financial support provided. Consequently, inadequately funded placements may disproportionately exclude students who are least able to bear these additional costs. This finding is consistent with recent international research highlighting the regressive effects of low-stipend vocational training requirements .

Financial pressure is compounded by deficiencies in industry networking. In the present study, 94% of respondents identified a lack of industry contacts as a major barrier to securing high-quality placements. This finding points to weak institutional–industry linkages within the vocational training system. In the absence of structured and institutionalised placement pathways, students may be forced to depend on personal networks, thereby disadvantaging first-generation technical learners and reinforcing existing socioeconomic inequalities [13, 26].

Although faculty-based career guidance received a high rating, with 96% net agreement, instructors appear to be working without sufficiently developed institutional mechanisms for connecting students with industry partners. This suggests that individual faculty support, while valuable, cannot substitute for formal placement offices, employer networks, and systematic industry engagement.

The findings relating to curriculum alignment further reinforce this concern. Although curriculum alignment received 70% net agreement, the 28% disagreement rate indicates substantial variation in students' perceptions of training relevance. This variation may reflect differences across trade categories, industry sectors, or placement environments. Regular curriculum reviews, employer consultations, and trade-specific updates are therefore necessary to ensure that ITI training remains aligned with current occupational requirements.

C. Evaluating Institutional Support and Inclusivity Pipelines

The findings for Objective 3 reveal a substantial gap between the interpersonal support available within Thane ITIs and the physical and material resources accessible to students. On the positive side, the high level of agreement regarding the inclusivity of the institutional environment—94% net agreement—together with the 90% agreement concerning mentor encouragement, indicates the presence of a generally supportive institutional culture. This conclusion is further strengthened by the positive pre-internship engagement reported by students, including a 100% positive response rate regarding industry visits and interactions during regular training.

However, this supportive culture exists alongside significant resource limitations. Both on-campus facilities—such as laboratories, tools, and digital resources—and the resources provided by corporate hosts received 76% net agreement. Although this represents a majority-positive assessment, the corresponding 24% dissatisfaction rate is substantial. The findings therefore point to a dual resource challenge: students may encounter outdated or overcrowded equipment within the ITI, while also experiencing inadequate workspace, tools, or digital facilities during their external placements.

These limitations have important implications for institutional inclusivity. While students generally perceive the institutional environment as inclusive, the 14% disagreement regarding equitable support for underrepresented groups suggests that resource shortages may affect disadvantaged students disproportionately. Students who lack access to equipment, connectivity, or technical support at home are particularly dependent on institutional and workplace resources. Consequently, deficiencies in these areas may restrict their ability to benefit equally from internship opportunities.

This findings suggests that inclusive policies cannot produce equitable career outcomes without equal access to up-to-date tools, laboratories, and digital infrastructure. The students' unanimous demand for corporate partners to provide comprehensive support for stipends, transportation, and accommodation further demonstrates the seriousness of the logistical burden associated with internships. This finding indicates a clear need to shift essential participation costs away from individual students and toward institutions, employers, or jointly funded support mechanisms

Overall, the results suggest that Thane ITIs have established a relatively supportive social and mentoring environment, but that this foundation is weakened by inadequate financial assistance, uneven industry linkages, and insufficient physical and digital resources. Strengthening these structural components will be essential for converting positive institutional attitudes into genuinely equitable and effective internship outcomes.

VII. LIMITATIONS

The pilot sample of 50 students, while appropriate for a preliminary investigation, limits the analytical depth of the descriptive findings and restricts the generalizability of the insights beyond the immediate cohort. The research focus is strictly contained within the Thane District of Maharashtra. Consequently, the localized findings may not apply to other districts within the state, or to other Indian states characterized by diverging industrial compositions and distinct ITI infrastructures.

The reliance on a non-probability sampling approach introduces potential selection bias, meaning the participating student cohort may systematically differ in their internship experiences or institutional attitudes compared to the broader ITI student population.

One categorical item recorded a minor missing data profile (45 valid responses out of 50), while one duration-related variable exhibited a data-entry inconsistency and was structurally excluded from the final dataset alongside two unreported placeholder items. To ensure maximum data integrity, only validated and internally consistent parameters are presented within the final tables and figures.

VIII. CONCLUSION

This pilot study provides empirical, student-level evidence on the effectiveness of internship programmes among ITI students in Thane District, Maharashtra. The structured internship programmes appear to be highly effective in supporting the development of employability skills among the participating ITI students. Within the study sample, students reported unanimous agreement regarding the translation of technical knowledge into workplace practice, the relevance of internship tasks to their coursework, the adequacy of workplace mentorship, and improvements in post-internship confidence and career readiness. Direct exposure to authentic professional environments emerged as the most prominent perceived benefit of the internship experience. This finding strongly supports the central principles of experiential learning theory and demonstrates the value of workplace immersion within technical and vocational education.

The findings reveal a critical financial-access paradox that complicates the transition from vocational education to employment. Although administrative systems appear to have ensured that all participating students received their stipends regularly, the amount received was widely perceived as inadequate. Specifically, 86% of respondents reported that their stipends were insufficient to cover basic living and commuting expenses. This distinction between stipend receipt and stipend adequacy is analytically important: administrative compliance does not necessarily guarantee meaningful accessibility. When combined with limited industry networks, which students identified as a major structural barrier to obtaining quality placements, inadequate financial support may restrict participation and disproportionately affect students from economically disadvantaged backgrounds. The findings therefore highlight the need for equity-oriented interventions that move beyond the implementation of minimum stipend requirements and address the actual costs associated with internship participation.

The study indicates that institutional support within Thane's ITIs is comparatively strong in its interpersonal and mentoring dimensions but remains constrained by material and infrastructural limitations. Students reported positive experiences of institutional inclusivity, mentor encouragement, faculty guidance, and industry engagement. However, concerns regarding the accessibility of on-campus laboratories, tools, digital resources, and facilities provided by host organisations reveal important operational weaknesses. These resource limitations may reduce the extent to which students can fully benefit from both institutional training and workplace learning.

The strong student demand for greater industry participation in curriculum design, together with the call for increased corporate support for transportation, accommodation, and other logistical expenses, identifies a practical pathway for strengthening regional vocational education policy.

Taken together, the findings suggest that the effectiveness of internships depends not only on whether placements are provided, but also on the quality, affordability, supervision, and resource environment in which they occur. The students of ITIs of Thane District have opinion appear to possess a positive foundation of mentoring and interpersonal support; however, this foundation must be reinforced through adequate financial assistance, stronger

institutional–industry partnerships, updated facilities, and more consistent alignment between curriculum content and workplace requirements. A more comprehensive internship model should therefore combine experiential learning with structured financial, infrastructural, and institutional support.

The findings should nevertheless be interpreted within the scope of the study design. As a preliminary pilot based on a purposive sample of 50 students, the results represent localized descriptive patterns rather than definitive or generalizable trends. Future research should employ larger probability-based or stratified samples across multiple industrial districts and should use longitudinal designs to assess whether internship-related gains in employability skills and career confidence persist over time. Subsequent studies should also combine self-reported perceptions with objective skill assessments, incorporate validated measures of entrepreneurial orientation, and conduct disaggregated analyses across trade specialisations, gender, socioeconomic background, and other relevant student characteristics.

Despite these limitations, the study establishes an important empirical foundation for further investigation into internship-based vocational education in Maharashtra. Its central contribution lies in demonstrating that internship effectiveness must be evaluated through both developmental and access-related dimensions. The findings particularly position the gap between stipend receipt and stipend adequacy as a significant policy and research concern. Addressing this bottleneck will be essential for ensuring that internship programmes become not only effective mechanisms for employability skill development, but also equitable pathways into sustainable employment.

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