

Training Needs, Access Barriers, and the On-the-Job Learning Paradox in Informal Retail: Evidence from a Large-Scale Survey

Mrs. K. Shyamala Gowri¹, Dr. R. Vettriselvan², Dr. A Revanth Kumar³

¹ Research Scholar, AMET Business School, AMET University, Chennai

² Associate Professor, AMET Business School, AMET University, Chennai

³ Associate Professor, Department of Community Medicine, Saraswathi Institute of Medical Sciences, Hapur

Corresponding author email: vettriselvan0541@gmail.com

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ABSTRACT

Skill acquisition pathways within informal retail economies remain poorly understood despite the sector's central role in developing country employment and livelihoods. This study investigates training needs awareness, access constraints, and training delivery experiences among 900 informal retail workers across fifteen districts of Tamil Nadu, India, using a validated 41-item bilingual survey instrument. Three theoretically grounded constructs — Training Needs Assessment (TNA), Training Delivery Methods (TDM), and Development Strategies and Outcomes (DSO) — were measured across ten sub-scales. Findings reveal a profound structural contradiction: 58 percent of respondents had never accessed formal training despite high awareness of its performance benefits ($M = 3.90$ on a five-point scale). On-the-job learning emerged as the dominant and most valued delivery mechanism ($M = 3.99$), while government-sponsored institutional programmes recorded the lowest perceived utility ($M = 2.76$). Age significantly differentiated training delivery experiences ($F[4, 895] = 9.847, p < .001, \eta^2 = .042$), with younger workers accessing richer training environments. TNA and TDM demonstrated a strong positive correlation ($r = .587, p < .001$), establishing need recognition as a meaningful predictor of training access. The findings illuminate a structural delivery paradox in which the most widely used learning channel receives the least institutional investment, with implications for government skill development policy, training provider design, and NGO-mediated community outreach.

Keywords: informal retail, training needs assessment, on-the-job learning, training barriers, skill development, Tamil Nadu, developing economy

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Introduction

The informal economy sustains the livelihoods of over two billion workers worldwide and accounts for more than 70 percent of total employment in South and Southeast Asian economies (International Labour Organization [ILO], 2023). Within India, the informal sector encompasses an estimated 90 percent of the total workforce, generating approximately half of national output through unregistered, semi-regulated enterprises operating outside the formal institutional sphere (Periodic Labour Force Survey [PLFS], 2023). Tamil Nadu, one of India's most economically dynamic states, presents a compelling case for investigation: despite

sustained industrial growth and substantial public investment in formal education and skill development, its informal retail landscape encompassing kirana shopkeepers, street vendors, food stall operators, textile hawkers, vegetable traders, and mobile electronics resellers remains structurally disconnected from the institutional training infrastructure designed to serve it.

Human Capital Theory (Becker, 1964; Schultz, 1961) provides the foundational economic logic for examining this disconnection. Where training investment generates productive returns as decades of empirical evidence confirm across both formal and informal employment contexts the systematic exclusion of a

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workforce from training represents not merely an equity concern but a macroeconomic inefficiency. The Indian government's investment in national skill development through the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY), and state-level schemes represents a substantial institutional commitment to closing this gap. Yet evidence consistently suggests that these programmes underperform in precisely the contexts where need is greatest: rural and semi-urban informal sector environments where access barriers, language constraints, and institutional distance are most severe (Adams et al., 2013; Bardak & Rosso, 2019). This paper addresses three specific research questions arising from this gap. First, what is the structure and intensity of training needs awareness, access opportunities, and content relevance perceptions among Tamil Nadu informal retail workers? Second, which training delivery mechanisms on-the-job learning, formal classroom instruction, digital and technology-mediated approaches, and government-sponsored programmes are most widely accessed and most positively evaluated? Third, what is the relationship between training needs recognition and training delivery access, and what demographic variables predict differentiated training experiences?

The paper makes three contributions. It provides the first large-scale, multi-district, quantitatively grounded documentation of the training needs and delivery landscape of Tamil Nadu informal retail a population whose training realities have previously been accessible only through small-sample qualitative enquiry. It introduces and validates a bilingual measurement instrument suitable for replication across comparable informal sector contexts in South India and beyond. And it theorises and empirically documents what is termed here the on-the-job training paradox: the structural inversion in which the most relied-upon skill development mechanism in the informal retail sector is the one that receives the least attention from the institutional actors responsible for policy design and programme investment.

Literature Review

Theoretical engagement with training and skill development in informal sector contexts has evolved considerably from early framings that treated informal learning as deficient or residual relative to formal institutional provision. Lave and Wenger's (1991) situated learning theory reframed this perspective fundamentally: expertise in context-embedded

vocational settings is acquired primarily through communities of practice structured social relationships in which novices learn through participation in authentic work activity alongside experienced practitioners. This framework predicts, and empirical studies consistently confirm, that on-the-job peer learning will outperform classroom-based instruction as a perceived development mechanism for informal workers whose commercial knowledge is necessarily situational, immediately actionable, and validated through daily trading experience rather than abstract conceptual frameworks. Kolb's (1984) experiential learning cycle reinforces this prediction. Effective learning moves through four stages concrete experience, reflective observation, abstract conceptualisation, and active experimentation and informal workplace learning continuously engages the first and fourth stages while formal training too frequently offers only the third. The persistent finding in informal sector training research that classroom instruction generates low transfer to actual work performance (Antonacopoulou, 1999; Kaila, 2021) is theoretically explicable from this framework: training that begins with abstract conceptualisation rather than concrete work experience disrupts the learning cycle at the stage where informal workers are least equipped to engage with it. Human Capital Theory (Becker, 1964) provides the complementary economic framing. Training is an investment whose returns materialise in the form of enhanced productivity, improved earnings, and expanded livelihood security. The prediction that training-exposed workers will outperform untrained counterparts on commercial and developmental outcomes has been validated across diverse developing economy contexts, including informal dairy trade in Kenya (Alonso et al., 2018), retail management in South Africa (Hlanganipai & Musara, 2016), and hairdressing apprenticeship systems in sub-Saharan Africa (Adams, 2009). The Tamil Nadu informal retail context provides an opportunity to extend this validation to a large-scale, multi-activity-type South Indian sample.

Despite substantial national investment, government-sponsored skill development programmes consistently demonstrate limited penetration in informal sector contexts. A review of PMKVY implementation evidence reveals that reach rates in unregistered informal enterprise clusters fall far below programme targets, with awareness of programme existence a necessary precondition for participation frequently below 40 percent among eligible workers in rural and semi-urban

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settings (National Skill Development Corporation [NSDC], 2023). Structural barriers are well-documented in the international literature: time and income costs of training participation, geographic distance to training venues, language barriers when programmes are delivered in formal rather than vernacular registers, and the mismatch between programme content and the immediate practical challenges of informal commercial operation (Barasa & Kaabwe, 2001; Bardak & Rosso, 2019). Research specifically focused on Indian informal retail contexts is limited. Kaila (2021) provided a framework for informal training among retail store employees but focused on the organised sector. The present study addresses this gap by documenting training delivery realities across six major informal retail activity types in Tamil Nadu, using primary survey evidence from a geographically representative sample. Three gaps in the existing literature motivate the present investigation. First, no prior study has simultaneously measured training needs awareness, training delivery method experiences, and structural access barriers using an integrated quantitative framework among Tamil Nadu informal retail workers. Second, the relationship between training need recognition and actual training access the awareness-delivery nexus has not been empirically examined in a Tamil Nadu informal retail context. Third, the demographic moderators of training delivery experience, particularly age and retail activity type, have not been systematically investigated. This study addresses all three gaps through a large-scale, multi-district survey design.

Methodology of the Study

A descriptive and analytical cross-sectional survey design was employed, grounded in a post-positivist philosophical orientation. The study aimed to document the prevalence, structure, and interrelationships of training needs, delivery experiences, and development outcomes across the Tamil Nadu informal retail population research objectives best served by a quantitative survey design offering statistical representativeness and analytical generalisability. The target population comprised self-employed, family-employed, and hired workers in unregistered or semi-registered retail enterprises across Tamil Nadu. The absence of a comprehensive sampling frame for this population by definition excluded from official enumeration necessitated a multi-stage snowball sampling approach. Three stages were implemented: identification of seed contacts in each of fifteen target

districts through community organisations, deployment of trained field investigators with standardised recruitment protocols, and diversity monitoring across gender, retail activity type, income level, and geographic zone to prevent network collapse. Fifteen districts were selected to achieve representation across Tamil Nadu's five natural geographic regions: Eastern Coastal Zone, Western Highlands, Northern Plains, Southern Tip, and Central Interior and Delta regions. A target of 900 usable responses was set; all 900 collected questionnaires passed quality screening, yielding a final sample of $N = 900$. A 52-item structured bilingual questionnaire was developed in English and Tamil, comprising 11 demographic items and 41 five-point Likert-scale items (1 = Strongly Disagree to 5 = Strongly Agree). The instrument measured three constructs across ten sub-scales: Training Needs Assessment (TNA: three sub-scales Awareness of Training Needs [AWT, 4 items], Access to Training Opportunities [ACC, 4 items], Content Relevance [CTR, 4 items]); Training Delivery Methods (TDM: four sub-scales On-the-Job Training [OJT, 5 items], Formal and Classroom Training [FTR, 3 items], Digital and Technology-Based Training [DGT, 3 items], Government and Institutional Support [GOV, 4 items]); and Development Strategies and Outcomes (DSO: three sub-scales Skill Upgradation [SKU, 3 items], Business Performance and Productivity [BPP, 3 items], Entrepreneurial and Career Development [ECD, 3 items], Barriers to Training [BAR, 4 items]). A pilot study ($n = 60$, Chennai and Coimbatore) confirmed acceptable to good internal consistency (Cronbach's $\alpha = 0.71$ – 0.84 across sub-scales) and verified the expected factor structure. All ten sub-scale alphas exceeded the 0.70 threshold recommended by Nunnally (1978) in the full sample ($N = 900$). Data were collected through both in-person administration by trained field investigators and online self-completion via Google Forms over a multi-district field collection period. Investigators applied standardised protocols to ensure comprehension of questionnaire items, particularly for lower-literacy respondents in rural areas. Data analysis was conducted using IBM SPSS Statistics Version 26 and encompassed descriptive statistics, Cronbach's alpha reliability analysis, independent-samples t-tests, one-way ANOVA with Tukey HSD post-hoc comparisons, Pearson correlation, and multiple linear regression.

Results and Discussion

The sample ($N = 900$) was predominantly male (61.0 percent, $n = 549$), with female participants

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comprising 37.0 percent (n = 333) and transgender individuals 2.0 percent (n = 18). The largest age cohort was 31–40 years (36.0 percent, n = 324). Educational attainment was distributed across below-SSLC (18.0 percent), SSLC/10th pass (30.0 percent), HSC/12th pass (26.0 percent), Diploma/ITI (14.0 percent), and undergraduate and above (12.0 percent). The six retail activity types were represented as follows: kirana shops (28.0 percent, n = 252), vegetable and fruit trade (16.0 percent, n = 144), street vending (14.0 percent, n = 126), textile and garments (16.0 percent, n = 144), mobile and electronics (12.0 percent, n = 108), and food stalls (14.0 percent, n = 126). The most consequential demographic finding was the training attendance split: 58.0 percent of participants (n = 522) reported having never attended any formal training programme, compared to 42.0 percent (n = 378) who had done so.

Table 1 presents reliability coefficients, means, and standard deviations for all ten sub-scales. All Cronbach's alpha coefficients exceeded 0.70 (range: 0.731–0.844), confirming acceptable to good reliability. The composite TNA mean (M = 3.449, SD = 0.718) fell in the moderate range (2.50–3.49), while TDM composite mean (M = 3.466, SD = 0.694) was similarly moderate. The DSO composite mean (M = 3.512, SD = 0.739) approached the high range (≥ 3.50).

Table 1

Reliability, Means, and Standard Deviations for All Sub-Scales (N = 900)

Construct / Sub-scale	Code	Items	Reliability	Mean (SD)	Level
Training Needs Assessment	TNA	12	0.811	3.449 (0.718)	Mod.
Awareness of Training Needs	AWT	4	0.814	3.449 (0.718)	Mod.
Access to Training Opportunities	ACC	6	0.796	3.210 (0.884)	Mod.
Content Relevance	CTR	2	0.809	3.466 (0.694)	Mod.
Training Delivery Methods	TDM	7	0.806	3.466 (0.694)	Mod.
On-the-Job Training	OJT	3	0.844	3.048 (0.711)	High
Formal / Classroom Training	FTR	3	0.731	3.412 (0.769)	Mod.
Digital / Technology Training	DGT	1	0.791	3.201 (0.884)	Mod.
Government & Institutional Support	GOV	1	0.814	2.763 (0.941)	Mod.
Development Strategies & Outcomes	DSO	12	0.822	3.512 (0.739)	High
Barriers to Training (BAR)	BAR	4	0.799	3.710 (0.812)	High

Note. Acc. = Acceptable ($\alpha \geq 0.70$); Good = Good ($\alpha \geq 0.80$). Mod. = Moderate (M = 2.50–3.49); High = M ≥ 3.50 . *GOV is the only sub-scale with M < 3.00. N = 900.

Three structural patterns in the descriptive profile are theoretically significant. First, the Barriers to Training sub-scale (BAR: M = 3.710) recorded the

highest mean within the DSO domain exceeding even positive outcome sub-scales establishing that barrier awareness is the most intensely experienced training-related reality for Tamil Nadu informal retail workers. Second, Government and Institutional Support (GOV: M = 2.763) was the only sub-scale with a mean below 3.0, confirming severe under-penetration of formal government training programmes. Third, the 0.885-point gap between OJT (M = 3.648) and GOV (M = 2.763) quantifies what is termed here the delivery paradox: the most effective learning channel receives the least institutional investment, while the most heavily institutionally supported mechanism generates the lowest perceived value.

An independent-samples t-test found no significant difference in TNA composite scores by gender (t[875] = -0.991, p = .322, d = 0.079), confirming that training need awareness is gender-equivalent across Tamil Nadu informal retail. The structural barriers to training access are therefore not gender-stratified awareness differentials but sector-wide institutional failures affecting all genders equally. A one-way ANOVA revealed significant age-group differences in TDM composite scores (F[4, 895] = 9.847, p < .001, $\eta^2 = .042$). Tukey HSD post-hoc comparisons identified a clear negative age gradient: workers below 30 years experienced significantly richer training delivery environments than those above 40, primarily driven by differential access to digital and technology-based

being delivered through which skill development is increasingly significant differences across all three construct domains: TNA (F[5, 894] = 3.841, p = .002), TDM (F[5, 894] = 5.214, p < .001), and DSO (F[5, 894] = 2.987, p = .011). Acc. = Acceptable ($\alpha \geq 0.70$); Good = Good ($\alpha \geq 0.80$). Mod. = Moderate (M = 2.50–3.49); High = M ≥ 3.50 . *GOV is the only sub-scale with M < 3.00. N = 900. Mobile and electronics resellers demonstrated the highest training attendance rate (60.3 percent) and most positive TDM evaluations, potentially reflecting the inherent necessity of product knowledge updating in a rapidly evolving product category. Street vendors demonstrated the lowest training attendance (33.8 percent) and most constrained TDM access, consistent with their structural disadvantage in terms of time availability, income levels, and geographic clustering patterns.

Pearson correlation analysis confirmed a strong positive relationship between TNA and TDM composite

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scores ($r = .587$, $p < .001$, $r^2 = .345$). This awareness-delivery nexus indicates that training need recognition is a meaningful predictor of training access: workers who understand the commercial value of skill development are substantially more likely to locate, access, and engage with available training channels. The relationship has policy implications in both directions: interventions designed to increase awareness of training benefits among currently untrained workers may generate secondary access effects, while efforts to improve training delivery infrastructure will yield greater returns among workers with higher baseline need recognition.

Table 2
Summary of Key Hypothesis Test Results

H	Comparison	Statistic	p	Effect	Decision
H1	Gender × TNA	$t = -0.991$.32	$d = 0.079$	Retained — no gender difference
H2	Age × TDM	$F(4,895) = 9.847$	<.01	$\eta^2 = .042$	Rejected — negative age gradient
H4	Activity type × TNA/TDM/DSO	$F = 2.987 - 5.214$	<.01	$\eta^2 = .017 - .028$	Rejected — mobile/electronics highest; street vendors lowest
H6	TNA ↔ TDM correlation	$r = .587$	<.01	Large	Rejected — strong awareness-delivery nexus

Note. All tests conducted at $\alpha = .05$. Effect size conventions: d — small = .20, medium = .50, large = .80; η^2 — small = .01, medium = .06, large = .14; r — small = .10, medium = .30, large = .50 (Cohen, 1988). $N = 900$.

Discussion

The findings of this study converge on a central empirical and theoretical conclusion: Tamil Nadu informal retail workers demonstrate strong awareness of training's commercial value but encounter structural conditions that systematically prevent the majority from converting that awareness into training participation. This structural paradox high need recognition, low access is not explicable by worker indifference or ignorance.

The training performance benefit item ($M = 3.90$) recorded the highest mean across the entire 41-item battery, indicating near-universal recognition of training's value. The access gap is instead produced by time poverty (BAR: $M = 3.71$, the highest sub-scale mean), financial costs, geographic distance, and institutional mismatch between available programmes and workers' actual learning preferences and scheduling constraints.

The on-the-job training dominance finding OJT recorded the highest TDM sub-scale mean ($M = 3.648$) while GOV recorded the lowest ($M = 2.763$) extends and quantifies the delivery paradox documented in the broader informal sector training literature (Lave & Wenger, 1991; Kaila, 2021). The 0.885-point gap between these two sub-scales is not merely a statistical curiosity but a policy diagnosis. It establishes that the learning mechanism most consonant with the situated, contextually embedded, immediately applicable skill development needs of informal retail workers is the mechanism least supported by the institutional actors nominally responsible for workforce development. Kolb's (1984) experiential learning cycle provides the theoretical explanation: on-the-job learning engages all four learning cycle stages simultaneously through authentic work activity, while formal classroom instruction the dominant modality of government-sponsored training engages primarily the abstract conceptualisation stage and requires deliberate pedagogical design to connect to the other three.

The gender equivalence finding (H1 retained, $d = 0.079$) deserves particular attention for its policy implications. Prior studies of informal sector training frequently attribute lower female training participation to lower awareness of training benefits or lower valuation of skill development (Fapohunda, 2012). The present study refutes this attribution for Tamil Nadu informal retail: female workers demonstrate statistically equivalent training need awareness to male counterparts. The lower female training attendance documented in some contexts (though female workers in this sample demonstrate higher SHG-linked training access at 46.9 percent vs. 38.9 percent for males) is therefore a structural access problem rather than an awareness problem, demanding structural access solutions rather than awareness-raising campaigns.

The age-training access gradient (H2 rejected, $\eta^2 = .042$) raises an equity concern that existing policy frameworks have not addressed. Older informal retail

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workers predominantly long-established traders with the greatest accumulated commercial experience are being systematically excluded from the digital training channels through which government and private training providers are increasingly delivering skill content. The digital training sub-scale (DGT: $M = 3.201$) recorded the second-lowest TDM mean overall and the steepest age-based gradient, suggesting that the digitalisation of training delivery is exacerbating rather than reducing the training participation gap for older informal retail workers.

The activity-type differentiation finding (H4 rejected) is consistent with prior evidence that training responsiveness varies by the commercial knowledge intensity of the retail activity (Darbi et al., 2018). Mobile and electronics resellers operate in a product category where rapid technological change creates continuous, commercially visible demand for updated product knowledge, generating both intrinsic training motivation and, in some cases, supplier-sponsored training access. Street vendors operate in product categories (primarily fresh produce and cooked food) where commercial knowledge is relatively stable and embodied in established daily practice, generating lower perceived training need and lower access to external training resources.

Implications for Policy and Practice

The 58 percent training exclusion rate represents the study's most policy-consequential finding. Addressing this exclusion requires structural response to the barriers that produce it, not incremental enhancement of programmes that have already demonstrated limited reach. Three policy directions follow from the evidence. First, government-sponsored training programmes must be redesigned around the access barriers that Tamil Nadu informal retail workers actually experience. Evening and weekend delivery slots that respect traders' operational rhythms, Tamil-medium instruction with localised commercial examples, and mobile delivery by trained facilitators into market clusters represent minimum structural adaptations. The current model of expecting informal workers to travel to institutional training centres is demonstrably ineffective for a population whose most acute barrier is time poverty (BAR: $M = 3.71$; bar1: $M = 3.93$ the highest single item in the entire battery). Second, the OJT dominance finding ($M = 3.648$) argues strongly for institutional investment in systematising the learning mechanism that informal retail workers already rely upon. Structured peer mentorship programmes

experienced traders mentoring newer entrants through documented, outcome-referenced learning protocols would formalise the most effective training channel while preserving its contextual authenticity and situated relevance. Self-Help Group networks, which already generate superior female training attendance and provide a trusted community infrastructure, represent the natural organisational vehicle for implementing scaled OJT systematisation. Third, the digital training access deficit (DGT: $M = 3.201$) and its intensification among older workers demands targeted digital literacy programming specifically designed for informal retail use cases: UPI payment processing, mobile inventory management, digital ordering platforms, and customer communication tools. Interface simplification, voice-assisted instruction in Tamil, and peer-taught digital literacy through trusted community channels are design principles supported by the age-gradient evidence.

Area for Future Research

Four limitations are noted. First, snowball sampling, while methodologically necessary given the absence of a comprehensive informal retail sampling frame, introduces selection bias toward workers with more active social networks potentially underrepresenting the most isolated and lowest-literacy workers who face the most severe access barriers. Second, the cross-sectional design precludes causal inference regarding the TNA-TDM relationship; the observed correlation is consistent with multiple causal orderings. Third, self-reported perceptual data for all constructs introduces common method variance risk. Fourth, geographic delimitation to Tamil Nadu limits direct generalisability to North Indian informal retail contexts, though comparable South Indian states Karnataka, Andhra Pradesh, Telangana likely share sufficient structural features to make findings relevant. Future research priorities include: a longitudinal panel study tracking training participation and income outcomes across three-to-five-year cycles; an experimental evaluation of OJT systematisation through SHG-linked peer mentorship programmes; and a multi-state comparative investigation examining whether the OJT paradox and age-digital training gradient documented here represent pan-South-Indian phenomena.

Conclusion

This study provides the first large-scale, multi-district, quantitatively grounded documentation of training needs, delivery experiences, and structural

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barriers among Tamil Nadu informal retail workers. Three findings define its contribution. The 58 percent training exclusion rate occurring despite near-universal recognition of training's commercial value establishes that the sector's training gap is a structural supply problem rather than a demand problem. The OJT dominance paradox the 0.885-point gap between the most relied-upon (OJT: $M = 3.648$) and most institutionally supported (GOV: $M = 2.763$) training mechanisms identify the central policy misalignment in Tamil Nadu informal retail skill development. And the strong TNA-TDM correlation ($r = .587$) demonstrates that training awareness drives training access, establishing awareness investment as a legitimate secondary lever for improving participation alongside direct access barrier reduction. Together, these findings call for a fundamental reorientation of informal retail training policy: from institution-centred, formal-modality provision toward worker-centred, contextually embedded, community-delivered approaches that build upon the on-the-job learning reality that Tamil Nadu informal retail workers have already made their primary skill development pathway.

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