# Design and Impact of Skill Development Platforms for Rural Youth:Opportunities, Challenges, and Future Directions

**HARJEET BAGHEL**
MBA Scholar
Maharana Institute of Professional Studies
Kanpur, Uttar Pradesh, India

**NEHA DIXIT**
Assistant Professor
Maharana Institute of Professional Studies
Kanpur, Uttar Pradesh, India

**How to Cite this Article**:

BAGHEL, H. (2026). Design and Impact of Skill Development Platforms for Rural Youth:Opportunities, Challenges, and Future Directions. International Journal of Creative and Open Research in Engineering and Management, 02(04). https://doi.org/10.55041/ijcope.v2i4.726



https://doi.org/10.55041/ijcope.v2i4.726

## Abstract

The unemployment of rural youth continues to be one of the most dominant socio-economic problems of the developing countries, and India cannot avoid this issue. Even though rural young people constitute almost 65 percent of the national population, they are out of formal employment opportunities in disproportionate measures because of inaccessibility to good education sources, job training, and Internet connection. The current paper researches the design, execution, and quantifiable effects of skill development platforms that are particularly created to serve the demands of rural youth groups. The research is based on a mixed-methods study design that will include structured surveys, interviewing key informants, and discussing secondary government and NGO data to understand how urban-rural skills gap can be effectively addressed using online, offline, and hybrid training models.

The paper will review the significant national programs, such as the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the National Skill Development Corporation (NSDC) and compare them to international best practice examples of countries like Bangladesh, Kenya, and Brazil. The results show that although digital platforms have high scalability benefits, other challenges such as lack of internet connectivity, low digital literacy, and socio-cultural aspects greatly limit distribution. The paper suggests a strata-based hybrid approach that includes mobile-first delivery, community learning centers, and vernacular content as the most plausible trajectory to getting equal attention to skill development. The policy recommendations will deal with relevance in the curriculum, the partnership between the government and business, and the design that is gender inclined. It is concluded in the paper that transformative impact would need not just technological implementation but systemic reformation that entails installation of skill platforms as part of larger rural development ecologies.

**Keywords:**youth in rural areas, skill acquisition, vocational training, digital divide, PMKVY, NSDC, hybrid learning, rural jobs.

## 1. Introduction

The background of Rural Youth Unemployment is as described in1.1.

The demographic dividend that India could get due to its high youthful population depends crucially on whether the young population can get productive jobs. About 347 million people aged 15 to 29 are estimated to be living in rural India in 2023, representing almost 46 percent of the rural population (Census of India, 2023-). But this population privilege is teetering on the edge of turning into a liability. The level of urban youth unemployment and underemployment is continuously above the rural level, and Periodic Labour Force Survey (PLFS, 202223) shows 18.7 per cent unemployment among the rural youth, as compared to urban 16.2. More importantly, even among the already employed rural youths a large percentage of these workers are left behind on low-productivity yet still agricultural-associated jobs or informal, casual jobs with abreccory upward mobility.

The inherent aspects behind this crisis are complex. The gaps in rural India in terms of secondary and tertiary education imply that a high number of young people in rural areas begin their work life lacking basic skills. National sample Survey (NSS) data indicates that just 2.4 percent of the Indian workforce underwent formal vocational training and in the rural region the percentage is even lower. Even though agricultural mechanization boosts productivity, it replaces some of the farm labor, without proportional, non-agricultural rural job creation. Climate-induced shocks also undermine the stability of agricultural incomes, sending the rural young generation to city migration under the circumstances of insufficient preparation.

### 1.2 Skill Development is Important.

The skill development has been generally identified as one of the main lever in enhancing individual employability and country economic competitiveness. According to the World Bank (2021), the rate of expansion of an individual income per year of a good secondary education is 10% in low-and middle-income countries. This is further enhanced through vocational and technical skills training (TVET) as it helps match the capabilities of the learners and the real labor market demand. Nonetheless, delivery of traditional TVET in India has been very urban-focused and presented in the form of Industrial Training Institutes (ITIs) and polytechnics, which are beyond the geographic or financial reach of majority of the rural youths.

In addition to the economic implications, there are significant social implications with regard to skill development. Talented young people in rural areas stand in a better place to engage in community activities, make informed choices on health and nutrition, and are immune to exploitative employment conditions. Family planning skills especially marketable skills can be structural to young women especially when they increase agency and remodel mainstream aspects of patriarchal culture that make mobility and economic engagement hard. Sustainable development agenda, such as SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth) places skill development explicitly as a prerequisite to inclusive human development.

### 1.3 Function of Technology and Platforms.

Coupled with the spread of mobile technology and the internet in rural India, has presented unheard of prospects of skills delivery delivered at low costs and on mass. As of 2023, Teledensity in rural India was 58.9 per cent (TRAI, 2023), and the penetration of smartphones is growing at a brisk pace under the initiative of affordable data packages following the Jio telecommunications revolution. Digital skillplatforms Government portals such as SKILL INDIA DIGITAL (SID) and commercial EdTech platforms have tried to take advantage of this infrastructure to support the content offering certified vocational content at scale. This shift was driven more intensely by the COVID-19 pandemic to make a quick conversion to remote learning that revealed both the potential and the severe constraints of the harnessing of the rural population solely on digital delivery models.

Integrated or hybrid models of delivering digital content and facilitating it physically through Common Service Centres (CSCs), Krishi Vigyan Kendra (KVKs), and community learning centres run by NGOs have been more promising in

reaching and retaining rural learners. Further opportunities to customize content to individual needs of learners, language preferences and prior knowledge levels are the opportunities of artificial intelligence and adaptive learning systems. Nonetheless, mobilization of technological potential into equity will depend on the ability to tackle the underlying structural inequalities that characterize the information and education situation in rural India.

1.4 Statement of the problem and objectives of the research.

Though the policy has great interest and the government has invested heavily in developing skills, the returns are low because adult education is low.<|human|>Although the policy received a lot of attention and much investment made by the government in skills development, the pay off is very low, since Indian government has invested very little in adult education. In 2023 24, 3,682 crore to the Ministry of Skill Development and Entrepreneurship– results are dismal among the rural youth. There has been a doubt about the rates of placements under flagship schemes such as PMKVY and external assessment indicates that the number of certified trainees actually employed in trained trades can significantly be less than that reported in official sources. It is this gap between investment and outcome which drives the research core questions that will drive this paper:

What design characteristics of skill development platforms best address the unique needs and limitations of rural youth?

- What do rural youth find to be the impediments to the access, completion, and benefits of available skill development programs?

How do the current government and civil society programs to work with the rural population compare to evidence based standards of an effective rural skills training program?

What design and policy interventions can greatly lead to fair results of the rural youth?2. Literature Review

**2.1 Global Perspectives on Youth Skill Development**

The scholarship on youth skill development spans economics, education, and development studies, reflecting the interdisciplinary nature of the challenge. Heckman and Mosso (2014) established the economic point of entry Human capital investment has been found to bring maximum benefits when structured at an early age, and poor young people need a compensatory investment to have access to the same type of results in life. Later research by the International Labour Organization (ILO, 2019) established that TVET systems that are constructed to be highly industry connected, focused on practical training, and that have established certification systems yield Latinally improved employment outcomes in comparison to exclusively academic tracks.

There are various determinants of good national TVET systems which have been determined through global comparative analyses. The two-step system of apprenticeship used in Germany (combining work experience and education in vocational schools) is often described as the gold standard, with the unemployment rates among the young population being regularly under 8% (OECD, 2022). Nonetheless, this model should be adapted cautiously to the contexts of developing countries, with their varying industrial organization, informality in the economy, and the institutional potential. The competency-based training model in Australia (South Korea Human Resources Development Service) and Brazil (SENAI) provide other examples of systems that are responsive to industry needs and quality assurance systems.

**2.2 Research on Skill Development in Indian context.**

The Indian scholarly provided information on skill development has significantly increased since the introduction of the National Skill Development Mission in 2015. Mehrotra (2014) offered a seminal initial study on the TVET system in India - giving it is dispersed across ministries, training centers of low quality and weak industry engagement as the systemic structural sore points. Later analyses of PMKVY by agencies such as the National Institute of Labour Economics Research and Development (NILERD) and International Labour Organization determined that even with impressive certification

figures; real sustained employment success occurred at significantly reduced levels with locations and trades trained getting placement figures of 20-35 per cent.

Surveys that have concentrated on the issue of rural skills development have brought forth the issue of compounding disadvantage that rural youth have to endure. Chandrasekhar et al. (2019) reported the downstream allocation of rural trainees through PMKVY programs by easy-to-train urban-proximate trades with less growth opportunities, having been influenced by its dependence on private training providers. Kumar and Singh (2020) established social categories intersections as a significant predictor of access to training and future employment, especially gender, caste, and poverty status; and Dalit and tribal youths and women across all groups showed disproportionately disadvantaged.

### 2.3 Governmental and Non Governmental Efforts.

The Indian government has implemented an intricate system of skill development schemes in various ministries. Other major schemes are the DDU-GKY (DeenDayal Upadhyaya Grameen Kaushalya Yojana) of the Ministry of Rural Development, which aims to offer residential training and placements to below-poverty-line rural youths; RSETIS (Rural Self Employment Training Institutes) of the Ministry of Agriculture; and sector-focused schemes of the Ministries of Textiles, Tourism

## 3. Data Collection Methods

There were three data collection instruments that were used to gather primary data. First, 450 rural young people aged 18-29 years in three districts of Uttar Pradesh and two districts of Jharkhand were sampled and a structured questionnaire was implemented, in order to capture high-poverty, high-youth-population rural settings with a range of digital infrastructures. The questionnaire included information on knowledge on skills development programs, barriers to access, training experiences, certification, employment, and access to digital devices and the internet. Second, program officers of government skill development agencies, NGO field officers, training center managements and industry representatives were interviewed (n=32 key informants). Third, eight FGDs with rural youth groups (four working with women, four with mixed genders groups) examined the motivations, aspirations and barriers in-depth, as well as, the experiences.

Artificial sources of secondary data were PLFS microdata (202122), PMKVY administrative data accessed using RTI applications, NSDC annual reports, Census village-level data, and published program evaluations of skill development programs by NILERD, ILO, and J-PAL South Asia.

### 3.1 Sample size and Target Population.

Stratified random sampling was used to select 450 participants who were the primary survey sample based on the following stratifiers; gender (50% women), age group (1822 and 2329), educational attainment (below secondary, secondary and above secondary) and district. With this sample size, the confidence level will be 95 per cent with a margin of error of about 4.6 which is enough to carry out the analysis of the study. The research population was characterized as youth population in rural areas aged 1829 years with a household where the agricultural income is their major source of livelihood, a minimum distance of 20 km to the nearest urban centre with more than 50,000 populations

The various constraints that impact the scope and generalizability of the findings are many. Geographic emphasis on Uttar Pradesh and Jharkhand provides representation of major high-poverty states, but is unlikely to be representative of states with other agro-climatic, industrial, and social backgrounds, like Tamil Nadu, Gujarat, or Northeast. There is social desirability bias on survey self-reporting on employment outcomes which may cause an overstatement of good outcomes. The female sample was restricted due to access constraints in certain villages where social conventions limited their contacts with the enumerators. Cross-sectional design does not allow causal inferences related to the program impact, longitudinal data would be required to prove causality. Lastly, administrative data obtained using secondary sources can be a reflection of reporting motivation by implementing agencies and not actual results.4. Skill Development Platforms: Concept and Models

### 4.1 Definition and Typology

In this paper, a skill development platform is any type of organized and structured system (digital, physical or a hybrid system) that intends to impart vocational information, technical abilities as well as/and employability abilities to a specified target group in a bid to enhance their employment prospects or self-employment ability. The above definition represents a broad category of modalities including the state-operated ITIs and privately-operated training facilities that provide residential courses, mobile application-based courses that allow people to learn at their own pace through various video-based methods, and community radio and television stations that provide education services to the masses in general rural regions.

It is possible to identify three major platform models that place along a digital/physical continuum. Content presented online is fully digital, in most cases via web portals, web apps or video streaming platforms. They are characterized by their geographic coverage, scalability, low marginal cost per extra learner, and capability to update content quickly as benefits. The rural constraints are their reliance on the stable internet connection, need to own the device, and lack of practical experience in technical professions. Structured supervised learning that has practical facilities (ITIs, vocational training centers, community learning centers) has a poor geographic coverage, and they have high fixed costs and quality inconsistency. Hybrid platforms are digital content delivery systems with physical facilitation nodes, which usually make use of the existing rural infrastructure (CSCs, school premises, and community halls). Experience in India and elsewhere in the world indicates that hybrid systems are best positioned to benefit rural people through a mix of the availability of digital delivery with the quality and social promise and experience offered by physical presence.

4.2.1 Characteristics of successful platforms.

Synthesis of research and field finding in this study pinpointed seven features that were mostly correlated with platform effectiveness of rural youth. Cursory applicability of the curriculum to local labor market demand is the baseline; platforms, where they routinely perform the analysis of the labor market, and design courses collaboratively with local employers, have much higher placement rates. Delivery of the vernacular language is significantly more conducive to comprehension and completion with learners stating 40-60 per cent enhanced retention rates with the teaching uttered in the native language than with Hindi or English. Identified certification that is associated with national qualification frameworks enhances the level of employer trust and motivation of learners. Sesible or Sponsored access eliminates economic obstacles that unfairly marginalize the most impoverished young people. Completion is better when there is flexibility in scheduling that considers the agricultural work cycle, household and seasonal migration patterns. Training is transformed into real livelihood improvement by provision of post-training support in form of mentorship, job placement as well as access to credit to start self-employment. Lastly, equitable access needs a gender-responsive design, such as safe transport, gender-separated facilities where such gender-specific needs are required, female trainers, and trades that meet economic opportunities in the locality of women.

4.3 Mobile Technology and Internet role.

The mobile technology has become the delivery vehicle of choice of the digital skill content in rural India with smartphone ownership far outnumbering computer/tablet ownership in urban households. In 2023, it was estimated that about 54 per cent of rural households had at least one smartphone, with fewer than 8 per cent of the households owning a computer or a laptop (ICMR-NIN, 2023). There is significant platform-design in implication of this smartphone-first reality. Small screen optimization of contents should be provided. 4.3 Mobile Technology and Internet role.

The mobile technology has become the delivery vehicle of choice of the digital skill content in rural India with smartphone ownership far outnumbering computer/tablet ownership in urban households. In 2023, it was estimated that about 54 per cent of rural households had at least one smartphone, with fewer than 8 per cent of the households owning a computer or a laptop (ICMR-NIN, 2023). There is significant platform-design in implication of this smartphone-first reality. Small screen optimization of contents should be provided.Screens, intermittent connectivity, and limited storage capacity are challenges.

Short-form video modules, which are 5 to 10 minutes long, work better than long lectures when connectivity is poor in rural areas. Downloadable content that allows offline access is essential in places with unreliable or expensive data.

The Jio telecommunications revolution has significantly lowered data costs. This change has allowed rural youth to access streaming content that was too costly just five years ago. However, there are still major connectivity issues in remote regions, especially in hilly, forested, and tribal districts. Furthermore, the gender digital divide remains a problem. Rural women are 50% less likely than rural men to own a smartphone (GSMA, 2022). This means that designing for mobile use does not guarantee equal access for both genders without targeted efforts..

## 5. Challenges Faced by Rural Youth in Accessing Skill Development

### 5.1 The Digital Divide

The digital divide in rural India operates across multiple dimensions simultaneously. Infrastructure gaps—inadequate mobile tower coverage, unreliable electricity supply, poor road connectivity to urban service centers—create a foundational barrier to digital platform access that cannot be addressed by individual effort alone. Device ownership gaps mean that even where connectivity exists, many rural households cannot afford smartphones or the data plans to use them productively. Digital literacy gaps mean that even device-owning youth often lack the skills to navigate learning platforms, create accounts, download content, or troubleshoot technical problems. Finally, the gender digital divide compounds all other dimensions, with rural women's access to devices and internet mediated by male household members' approval and control.

Survey findings from this study indicate that 43% of respondents lacked personal smartphone ownership, relying on shared family devices with restricted access time. Among women respondents, this figure reached 61%. Internet connectivity was rated as poor or unreliable by 58% of respondents in village locations more than 25 km from the nearest taluka town. Critically, only 31% of respondents who had attempted to access online skill content reported completing at least one module, with connectivity problems cited by 67% of non-completers as the primary barrier.

### 5.2 Lack of Infrastructure

Physical infrastructure deficits extend beyond digital infrastructure to encompass the full ecosystem needed to support skill development participation. Transportation infrastructure limitations mean that rural youth often face impractical journey times to reach the nearest training center, with associated costs representing a significant proportion of household income. Power supply irregularities disrupt both physical training center operations and individual digital device charging. The scarcity of quality training centers in rural areas—India has approximately one ITI per 500,000 rural population compared to one per 100,000 urban—creates a structural supply gap that digital platforms alone cannot fill for trades requiring hands-on practice, such as welding, construction, automotive repair, or healthcare.

Study data reveals that the median distance from respondents' villages to the nearest skill training center was 34 km, with 28% reporting distances exceeding 50 km. At average rural transport costs of Rs. 2–3 per km, daily commuting to training would consume Rs. 136–204—a prohibitive amount for youth from households earning Rs. 6,000–8,000 per month. This infrastructure reality underscores why residential training programs with hostel facilities and stipends have shown better rural completion rates despite their higher per-trainee cost.

### 5.3 Financial Constraints

Financial barriers to skill development participation operate through multiple mechanisms. Direct costs—training fees, examination fees, certification costs, tool kits—are the most visible but not necessarily the largest constraint. Indirect costs—transportation, accommodation for residential programs, foregone income from agricultural or informal labor during training—often exceed direct costs for rural youth. Opportunity cost considerations are particularly acute during peak agricultural seasons and for households dependent on youth labor for subsistence farming. Longer residential training programs, which are pedagogically better with technical trades, put a larger burden on finances.

Direct training costs that PMKVY and state-level schemes have had a significant impact on the enrolled learners. But the scholarship and stipend system has been plagued by time lags and administrative problems that put off participation. Also, the discrepancy in training trade selection and local labor markets implies that even training young people who have been successful in terms of skills may not get back their investment in skills at home districts, which further supports migration pressures, with mixed welfare impacts.

5.4 Social and Cultural Obstacles.

Some of the most deeply rooted and hard to overcome barriers to participation in skill development of young youth in the rural areas exist in social and cultural aspects especially among young women. Patriarchal structures that limit the movement of women out of the village, the need to have a chaperone or parental consent to train travel, physical insecurity in the training setting or when commuting, and the disapproval of women in male-dominated occupations all significantly limit female enrollment and success. Early marriage still cuts the skills development path of many young women with the survey showing that 34 percent of the women surveyed had dropped out of educational or training programs because they got married before the age of 21.

Access to and outcomes of skill development are also influenced by caste-based discrimination. Barriers reported by Scheduled Caste and Scheduled Tribe youth include discrimination in training center settings, not being included in some of the trade networks dominated by higher-caste artisan communities, and access to the social capital networks through which informal jobs are frequently obtained. Aspirational barriers- the belief held by rural youth and their families that some professions are inappropriate because of caste, gender or social status- influence the choice of trade in a manner that could restrict economic mobility.6. Case Studies

6.1 Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

Introduced in 2015, and currently in its fourth phase (PMKVY 4.0, 202226), PMKVY is the Indian flagship skill certification program, providing training in short-term skills development to 10 million young people across 300+ job roles in 37 sectors, through a network of around 10,000 national Skill Development Centres (SD The main characteristics are the recognition of prior learning (RPL) of informally skilled workers, facilitation of placement by the Skill India portal of NSDC, and financial incentives of the trained and assessed applicants.

Assessments are a two-sided story. According to official data, more than 13 million people are enrolled cumulatively and 9.7 million certified trainees as of March 2024. Nonetheless, external evaluations cast a lot of doubts on the quality of training and employment results. An evaluation of J-PAL South Asia discovered a mean post-training earnings increase of about Rs. 600-800/month- meaningful, yet small-scale, with a high level of heterogeneity across sectors and geography. Rural trainees experienced less absolute earnings gains but greater relative increase than baseline. The development of the scheme into digitally-delivered training under PMKVY 4.0 has potential but poses the risk of aggravating the digital divide unless sufficient investment in infrastructure in rural regions.

6.2 National Skill Development Corporation (NSDC)

NSDC is a state-owned-industry association organization under the Ministry of Skill Development and Entrepreneurship, which aims to stimulate the involvement of the private sector in the skill development process due to the concessional funding, the standards of quality, and the development of an ecosystem. NSDC has approved more than 538 Training Partners and has created a national database of 38,000 + assessed and certified trainers. Its Skill India Digital (SID) platform includes the delivery of training, assessment, certification and placement facilitation within a single digital ecosystem.

Among rural young people, mobile training vans visiting rural locations, sector-specific skills training in agriculture and MSME sectors, and collaboration with rural cooperative networks and SHGs to access women especially are the most relevant programs of NSDC. The NSDC industry interface has raised the relevancy of the curriculum but performances are still focused on urban and peri-urban employment with little effects being felt on rural livelihoods in the region. The way forward is to build strong rural employer networks, and fund rural MSME mentorship initiatives to absorb youth trained locally.

6.3 DDU-GKY: Rural Youth Employment Program.

DeenDayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY), under the Ministry of Rural Development through State Rural Livelihood Missions (SRLMs), is aimed specifically at rural BPL young people (1535) with an emphasis on placement-based training. The special features of the scheme are: mandatory post-training placement as a prerequisite of the Project Implementing Agency (PIA) funding, residential training (boarding and lodging of outstation placements), support of international placements, and post-placement retention support such as career counseling and grievance redressal. Stipend support cuts down the financial hurdles on trainees.

The rural youth employment outcomes of DDU-GKY have been among the best of the government schemes with independent assessment by NCAER (2020) indicating 60-70% placement rates of completed trainees in some states, which is well above PMKVY averages. The residential model has been especially successful with young women in conservative rural backgrounds, with a structured, safe place to be trained and work. The scheme has however been criticized by difference in implementation across states, and late payments to PIAs as well as issues of trainee welfare in certain residential facilities. Its urban location model also interferes with the cohesion of rural communities and fails to deal with the economic development of the rural areas on the ground.

6.4 Gram Tarang: NGO Hybrid Learning Model

Gram Tarang Employability Training Services is a subsidiary of the Sambhav Social Trust and is a relevant example of civil society in the rural development of skills, working mainly in the states of Odisha, Jharkhand and Chhattisgarh, which are the most underdeveloped in India. The model of Gram Tarang integrates training in residential facilities in dedicated centers in semi-urban areas with strong outreach and preparation in village communities via collaboration with SHGs, local youth organizations, and panchayat institutions. The organization also spends a lot in mobilization of the communities before enrollment, targeting the social barriers especially among young women in the tribal communities.

The digital integration in Gram Tarang is a learning management system that provides additional value and skills testing, and career advice that can be accessed via shared devices in Gram Tarang training centers. Post-training services comprise a special placement cell with employer contacts in areas such as manufacturing, hospitality, and IT-enabled services and peer alumni network that offers mentorship and referrals to new trainees. According to 202223 outcome data, the placement rate of 202223 is 78% (compared to the sector average of 67.7), and the 6-month retention is over 65% (compared to the sector average of 61.9). The success factors of the organization are strong community trust developed over 15 years, industry focus to meet the regional employer demand, and comprehensive trainee support that meets not only skills but also documentation, financial inclusion and welfare requirements.7. Data Analysis and Findings

7.1 Results of survey: Access and Awareness.

Principles of the primary survey data indicate that there are dramatic gaps in awareness of existing programs of developing relevant skills among youths in rural settings. Awareness of PMKVY was only 41% and among this, only 23% had registered. DDU-GKY awareness was at 28 with enrollment at 11% of those who were aware. Such awareness gaps are especially acute in the case of programs that are provided via digital mediums, which indicates a lack of internet-access and

digital literacy of the target population. Remarkably, there was a significant level of awareness in youth who had attained secondary education (Class 10 or above), implying that the level of information access is mediated by educational attainment.

Classroom-based in a training center was the most frequent way of learning among the respondents who had enrolled in skill training (64%), then a combination of classroom and digital (21%), and then the respondents who had used only online learning (15%). The completion rates differed significantly by mode: classroom-based training had the highest completion (72%), hybrid training (68%), and online-only (31%), which supports the difficulty of delivering training entirely online to rural learners. The first reason to do it was family commitments (38%), money (31%), distance/transportation (22%), and content challenge/language barriers (19%). There were several answers which were acceptable.

7.2 Employment Outcomes

Employment outcomes differed significantly between trade, gender, and distance to employment opportunities among respondents who completed skill training (n=187). Altogether, 52 percent stated that they had found employment in their trained trade within six months of certification and 18 percent found employment in a related field. Nevertheless, only 34% of rural women who have gone through training said they were employed in a trained or related trade, in contrast to 68% of rural men, a dramatic disparity also explained by mobility constraints, family responsibilities after marriage, and the lack of local employer demand of feminized trades like beauty and wellness, textile work, or food processing**.**

**Table 1: Employment Outcomes by Gender Among Training Completers**

| Outcome | Male (%) | Female (%) | Overall (%) |
|---|---|---|---|
| Employed in trained trade | 68 | 34 | 52 |
| Employed in related trade | 19 | 17 | 18 |
| Self-employed | 8 | 12 | 10 |
| Unemployed | 5 | 37 | 20 |

7.3 Major Barriers: Summarizing in Numbers.

The strongest independent predictors of skill training completion and employment outcome were determined using multivariate logistic regression analysis of survey data. The most significant predictors of joining training were distance to training center (odds ratio 0.94 per km, $p<0.01$) and personal ownership of a smartphone (OR 2.3, $p<0.001$). Post-training placement support (OR 3.1, $p<0.001$) and training in a locally-demanded trade (OR 2.7, $p<0.001$) were the most effective predictors of employment in a trained trade among enrolled learners. Even after other factors were put into account, gender was a strong predictor of employment outcome (women OR 0.41, $p<0.001$), which implied that there were systemic barriers that did not rely on individual factors.

7.4 Qualitative Findings

Aspiration, pragmatism and systemic frustration were identified in focus group discussions. Rural young people continued to have high aspirations of skilled jobs with government jobs being the most aspirational followed by urban jobs in the private sector and own-enterprise in a skilled trade. The knowledge of skill development programs was frequently mediated by social networks- a friend or a relative who had enrolled- instead of formal means of communication. A lack of trust in the quality of the programmes and the recognition of the certificate was a major determinant to not registering among young people who had heard of schemes but had not done so.

Women in FGDs expressed advanced knowledge of the structural impediments they encountered, differentiating between family imposed limitations, community values and actual lack of opportunities in the locality. Multiple respondents pointed out that whilst family support of training attendance existed in some areas, the lack of secure means of travel to and from the train in the evening meant that the option of attending courses that had an afternoon to evening schedule was virtually

non-existent. Community-based learning, training in the village or within easy reach of the village instead of having to travel, was hugely popular among the participants, with participants saying they would accept more basic facilities in place of local delivery.

## 6. Discussion

6.1 Comparison with Literature

The results of the study significantly reinforce the trends recorded in the literature and provide the specific rural area under study with the granularity. The low completion rates of the purely online learning (31 percent) align with the results of Lall and Majumdar (2021) and are due to the numerous connectivity, literacy, and motivational challenges posed on rural students by self-directed digital learning. The gender job gap observed in this research (34% vs. 68% employed in trained trade) is comparable and indeed larger than those found in the NSDC and NILERD national data, indicating the cumulative effects of overall rural disadvantage with gender-specific limitations to the study districts.

The significantly improved results of the Gram Tarang model relative to government schemes are congruent with the accumulating evidence that civil society organizations, when functioning at the right scale and with community trust and holistic support, are capable of yielding better results than larger, but less contextually sensitive government programs. It is not a case against government programs--their scale is necessary to have systemic effect--but an argument in favor of the value of design based on civil society examples to reform government delivery.

6.2.1 Effectiveness of Existing Platforms.

A candid review of the existing skill development programs targeting rural young people indicates that there is a wide disconnect between the desire and performance. Government flagship programs demonstrate a remarkable level of enrollment and certification, but cannot convert this into long-term quality jobs, especially when used by rural youth with disadvantaged backgrounds. This largely occurs due to structural flaws in the design of the system- per-trainee incentives that encourage certification over quality results, lack of industry participation, especially in rural labor markets, lack of concern over post-training support, and failure to adapt to the unique accessibility of rural students.

Rural youth have not yet seen transformative reach through digital platforms because of the continuing lack of infrastructure and the design problems of establishing effective learning experiences with rural connectivity limitations. Nonetheless, the coming of age of smartphone penetration and the creation of superior offline-enabled, vernacular-language content platforms opens real medium-term prospects. The key divide is not technological capability but institutional and financial desire to create platforms that are truly rural-friendly, as opposed to adapting urban-centric products.

## 7. Conclusion

In this paper, the design, implementation, and results of skill development platforms aimed at engaging rural youth have been considered based on empirical evidence gathered from the field, secondary literature, and a thorough academic review. It has been found that while India has constructed an outstanding institutional framework for skill development and invested heavily in the industry, rural youth, especially young women and youth from Scheduled Castes and Tribes communities, still see very poor results.

The reasons behind these failures are not technical. India has the necessary mobile penetration, the necessary platform infrastructure, and institutional capability for delivering skill development services to rural youth. Instead, the problems lie in design and incentive misalignments whereby programs are poorly designed for the realities of rural contexts and incentive structures prioritize investments over job outcomes.Going forward, political determination will be needed for the

greater effort required towards outcome accountability, community building, and inclusion that cannot be attained by way of technology alone. Hybrid approaches combining both digital delivery of content and community-based facilitation hold promise, but only if such systems are built for rural populations from the bottom up and not simply modified versions of solutions already designed for urban markets. The examples of DDU-GKY and Gram Tarang show that much better outcomes can indeed be achieved; the question will be how to scale them while maintaining their quality.

Research priorities include longitudinal evaluation of impact from skill training on household well-being, including intra-household distributional effects; experimental evaluation of design features (ability to use offline, language appropriateness, peer-group based learning) for improving rural program completion rates and success; and political economy analysis to explore why better-proven models have not yet displaced less successful ones at a faster pace. Rural Indian youth deserve better-designed skill training systems, not simply adaptations of what works elsewhere.

## References

Chandrasekhar, C. P., Ghosh, J., &Roychowdhury, A. (2019). The employment challenge in India. Economic and Political Weekly, 54(6), 48–55.

https://cag.gov.in/uploads/download_audit_report/2019/Report_No_28_of_2019_English.pdf

Government of India, Ministry of Skill Development and Entrepreneurship. (2023). Annual Report 2022–23. MSDE Press.

GSMA. (2022). The mobile gender gap report 2022. GSMA Connected Women. https://www.gsma.com/r/gender-gap/

Heckman, J. J., & Mosso, S. (2014). The economics of human development and social mobility. Annual Review of Economics, 6(1), 689–733. https://doi.org/10.1146/annurev-economics-080213-040753

International Labour Organization. (2019). Skills and the future of work: Strategies for inclusive growth in Asia and the Pacific. ILO Regional Office for Asia and the Pacific.

International Labour Organization. (2022). World Employment and Social Outlook: Trends 2022. ILO Publications.

Kumar, A., & Singh, R. K. (2020). Social exclusion and skill development: Evidence from scheduled caste and scheduled tribe youth in rural India. Journal of Rural Studies, 78, 112–124.

Lall, M., & Majumdar, M. (2021). Digital learning for rural India: Challenges and opportunities. Contemporary Education Dialogue, 18(1

Government of India, Ministry of Finance. (2024). Union Budget 2023-24: Expenditure Profile. Controller General of Accounts.

National Council of Applied Economic Research. (2020). Evaluation of DeenDayal Upadhyaya Grameen Kaushalya Yojana by third party. NCAER Research Paper.

National Skill Development Corporation. (2023). NSDC Annual Report 2022-23. NSDC India.

OECD. (2022). Education at a Glance 2022: OECD Indicators. OECD Publishing. https://doi.org/10.1787/3197152b-en

Periodic Labour Force Survey. (2023). Annual Report PLFS 2021-22. Government of India, Ministry of Statistics and Programme Implementation.

Telecom Regulatory Authority of India. (2023). Data of telecom subscriptions as on 31st March 2