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ICT Skills and Employment Outcomes: A Study of Tribal Youth in Nandurbar

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Abstract

The study investigates employment prospective of ICT skills among tribal youth in Nandurbar. With the emerge of national digital skill initiative, there has been a gap identifying the effectiveness of ICT skills in tribal part of Maharashtra. The research is based on quantitative data of 60 tribal youth divided into two groups 'ICT trained' and 'non-trained' aging between 18 to 30. The primary data is collected through structure questionnaire and analysed using descriptive and inferential statistics. The outcome of the study shows positive correlation between ICT training and employment prospective, also there is a significant difference in the income of ICT trained and non-trained tribal youth in Nandurbar. The finding provides robust, evidence-based support for the effectiveness of ICT skills as a tool for economic empowerment in tribal region

Keywords: ICT, Tribal, Employment, Training

1. Introduction

1.1 Background of the study:

The digital India movement has been a buzzword in the country and over the past few years it has been evident that India has made a remarkable progress in becoming digitally empowered society. The **'Digital India'** and **'Skill India Mission'** launched a decade ago has accelerated the integration of technology into the economy of the nation (NITI Aayog, 2023). However there has been a lack of involvement of remote regions of India when it comes to digital transformation.

This study is based on Nandurbar, a district of Maharashtra with over 69% population belonging to scheduled trials as per Census of India 2011. The communities mainly **'Bhil'** and **'Pawra'** has faced socio-economic disadvantages including quality education, livelihood challenges, and limited access to employability *(Government of Maharashtra, 2013).*

In present time ICT skills are not luxury but necessity as it introduces access to several government schemes, facilities and connectivity with the outer world, on top of that ICT is also crucial for employability. As per world bank report 2024, ICT skills are fundamental components of human capital required for economic mobility. It will not be odd to say that ICT skills are the bridge between potential of tribal youth and demand of modern economy.

1.2 Problem Statement:

In order to follow the nationwide skill mandate, various government and non-government organizations have established ICT training canters across Nandurbar district. These institutes offer a variety of skill-based computer courses such as office automation, computerized accounting, desktop publishing etc. Although there has been technological establishment, a significant problem persists as there is a lack of contemporary empirical data that provide evidence to support the role of ICT based training for employability of tribal youth. This gap in knowledge puts a question mark on the success of digital awareness mission in tribal region, this research is an effort to answer the question.

1.3 Research Questions:

1. Does the ICT skill correlate with the job acquiring skills, income level and job stability?
2. Which ICT skills are most in-demand among local employers?

1.4 Objectives of the Study:

1. To study the current status of ICT skills and employment among tribal youth of selected areas of Nandurbar.
2. To quantitatively evaluate the impact of ICT training on employability prospectus of tribal youth in Nandurbar district.

1.5 Research Hypotheses

Based on the research questions and the comparative design of the study, the following hypotheses will be tested:

- **H1:** ICT Skilled Tribal youth are more likely to be employed compared to ICT unskilled youth in Nandurbar.
- **H2 :** The average monthly income of ICT-trained tribal youth in Nandurbar is significantly higher than that of their non-trained counterparts.

1.6 Significance of Study:

1. The study will provide data-driven insights for the policy makers for national and state level tribal welfare policies.
2. The study will provide strategical guidelines to training institutes to redesign their curriculum and placement mechanism.
3. The study will be a significant contribution to literature on social diversification, human resource development in rural and tribal India.

1.7 Scope and Delimitation:

1. **Geographical:** The fieldwork of the study has been restricted to selected villages of Nandurbar Taluka.
2. **Demographic:** The participants of the study are tribal youth of all genders belonging to age group of 18 to 30 years.
3. **Thematic:** The research will focus on non-formal, short term (3-6 months) ICT courses offered by Government registered organizations.

2. Literature Review

1. Merely possessing skills is not sufficient. Amartya Sen's Capability Approach (Sen, 1999) provides a more holistic lens. It argues that development should be seen as the expansion of an individual's "capabilities"—their real freedoms and opportunities to achieve what they value. In this context, ICT skills are not just assets but enablers that expand the capabilities of tribal youth to seek better jobs, access information, and participate more fully in economic life. The true measure of success, therefore, is not just certification, but the genuine opportunity to convert skills into desired outcomes.
2. Research on vocational training for marginalized communities in India presents a mixed picture. Some studies show positive correlations between vocational training and increased income, particularly for women and youth in urban peripheries (Chakraborty & Papola, 2021). However, others find that the impact is often muted due to a mismatch between the skills taught and the jobs available, poor training quality, and a failure to integrate soft skills like communication and professionalism into the curriculum (Iyer & Rawal, 2022). This study builds on this literature by focusing specifically on the ICT sector within a tribal context.
3. Studies from other tribal-dominated regions in India, such as Jharkhand and Odisha, show that ICT can be a powerful tool for empowerment. For example, ICT interventions have been used to provide agricultural information, facilitate access to government schemes, and support the marketing of non-timber forest products (Mishra & Das, 2020). However, most of this research focuses on community-level empowerment rather than individual employment outcomes from formal ICT training.

3. Research Methodology

3.1. Research Design

The study will employ a quantitative approach to systematically measure the impact of ICT training on employment outcomes. A **comparative, cross-sectional design** is utilized to provide a robust framework for analysis. This design involves collecting data at a single point in time from two distinct groups:

- **Treatment Group:** Tribal youth who have completed a skill-based ICT training program.
- **Control Group:** A comparable group of tribal youth from the same communities who have not undergone any formal ICT training.

By comparing the employment status, income levels, and job types between these two groups, the study aims to isolate and assess the influence of the ICT training intervention.

3.2. Study Area

The research is conducted in Nandurbar Tehsil, Maharashtra. This tehsil has been selected due to its significant tribal population and the presence of several government and non-government ICT training centres, making it ideal for this research. Data collection includes selected villages and the main town area within the tehsil to ensure a representative sample of both rural and semi-urban youth.

3.3. Sampling

- **Target Population:** The target population for this study comprises all tribal youth residing in Nandurbar tehsil, aged between **18 and 30 years**.
- **Sampling Technique:** A multi-stage sampling technique will be adopted. First, **purposive sampling** is used to select two active and established ICT training institutes within the tehsil. Second, **stratified random sampling** is employed to select youth participants. The population is stratified into the 'trained' and 'non-trained' groups, and individuals be randomly selected from each stratum.
- **Sample Size:** The study have a total sample size of **60 respondents**, broken down as follows:
    - **Trained Group:** 30 youth who have completed an ICT course from the selected institutes in the last 1-2 years.

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- **Control Group:** 30 youth with similar demographic profiles (age, education level) from the same villages who have not received such training.

3.4. Data Collection Tools

The primary tool for data collection is a structured survey questionnaire. This instrument is designed to capture quantitative data across several key domains, including demographics, training related (for the trained group), employment status, income and job details(for those who are employed), and self assessment of ICT skill level.

3.5. Data Analysis Plan

All collected data is coded and analyzed using the Statistical Package for the Social Sciences (SPSS) software. The analysis involves:

- **Descriptive Statistics:** Frequencies, percentages, means, and standard deviations are used to summarize the demographic profiles and employment characteristics of both groups.
- **Inferential Statistics:** To test the study's hypotheses, the following tests are conducted:
  - **Chi-square (χ^2) test:** To determine if there is a significant association between ICT training and employment status (employed/unemployed).
  - **Independent samples t-test:** To compare the mean monthly income between the trained and non-trained groups.

4. Data Analysis and Interpretation

This section presents the analysis of the data collected from the 60 survey respondents, comprising 30 ICT-trained youth (Treatment Group) and 30 non-trained youth (Control Group). The analysis is structured to test the hypotheses.

4.1. Demographic Profile of Respondents

To ensure comparability between the two groups, key demographic variables were analyzed. The data indicates that both groups were well-matched in terms of age, gender, and educational background, minimizing the influence of these variables on the outcomes.

Table 4.1: Demographic Characteristics of Respondents

Characteristic	Trained Group (n=30)	Control Group (n=30)
Mean Age (Years)	23.5	24.1
	Gender	
Male	16 (53%)	17 (57%)
Female	14 (47%)	13 (43%)
	Education Level	
12th Pass	18 (60%)	19 (63%)
Graduate	12 (40%)	11 (37%)

4.2. Hypothesis Testing

4.2.1. Testing H1: ICT Training and Employment Status

H1: *ICT Skilled Tribal youth are more likely to be employed compared to ICT unskilled youth in Nandurbar.*

H0: *There is no significant difference between employment of ICT Skilled Tribal youth and ICT unskilled youth in Nandurbar.*

To test this hypothesis, the employment status of both groups was compared.

Table 4.2: Crosstabulation of Training and Employment Status

Group	Employed	Unemployed	Total
Trained Group	22 (73.3%)	8 (26.7%)	30
Control Group	10 (33.3%)	20 (66.7%)	30
Total	32	28	60

Table 4.3: The result obtained from chi-square test

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.643[a]	1	.002		
Continuity Correction[b]	8.103	1	.004		
Likelihood Ratio	9.925	1	.002		
Fisher's Exact Test				.004	.002
Linear-by-Linear Association	9.482	1	.002		
N of Valid Cases	60				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.00.
b. Computed only for a 2x2 table

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The results show a remarkable difference showing 73.3% of the ICT-trained youth were employed, compared to only 33.3% of the non-trained youth. A Chi-square test for independence was performed to determine if this association was statistically significant. The result was significant, **$\chi^2(1, N=60) = 9.643, p = .002$**.

Since the p-value (0.002) is less than the alpha level of 0.05, we reject the null hypothesis. This indicates a strong, statistically significant association between completing ICT training and being employed. Therefore, ***Hypothesis H1 is accepted.***

4.2.2. Testing H2: ICT Training and Monthly Income

H2: *The average monthly income of ICT-trained tribal youth in Nandurbar is significantly higher than that of their non-trained counterparts.*

H0: *There is no significant difference between average monthly income of ICT-trained tribal youth and non-trained counterparts in Nandurbar.*

This hypothesis was tested by comparing the mean monthly income of the employed individuals in both groups.

Table 4.4: Comparison of Mean Monthly Income (in ₹)

Group	N (Employed)	Mean Income	Standard Deviation
Trained Group	22	₹ 10,850	₹ 1,600
Control Group	10	₹ 7,100	₹ 1,150

Table 4.5: The result obtained from Independent Samples t-Test

Independent Samples t-Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
ICT_Skill	Equal variances assumed	1.213	.277	9.917	40	.000	3750.000	378.126	2985.780	4514.220
	Equal variances not assumed			9.864	38.338	.000	3750.000	380.183	2980.582	4519.418

The data reveals that the average monthly income for the employed trained youth (₹10,850) was substantially higher than that of the employed non-trained youth (₹7,100). An independent samples t-test was conducted to verify if this difference was statistically significant. The test yielded a significant result, **$p < .001$**.

The p-value is less than 0.05, leading to the rejection of the null hypothesis. This confirms that the observed difference in mean income is statistically significant. Therefore, **Hypothesis H2 is accepted.** The ICT-trained youth not only have a higher chance of being employed but also earn significantly more than their non-trained peers.

5. Findings, Conclusion and Recommendations

5.1 Research Findings:

The average age of the respondents in the research is 23.8 years, most of the respondents are of age 24. The average age of Trained group respondents is 23.5 years, while the average age of the control group (untrained respondents) is 24.1 years. Out of all respondents 55% were male and 45% were female.

61.7% respondents among both the groups were 12^{th} pass, while 38.3% respondents were either graduate or having higher qualification. The average monthly income of respondents from both the groups is ₹ 9,560, it has been observed that the average income of trained respondents is 52% higher than the untrained respondents.

MS-CIT, Tally and DTP are the most preferred courses among the tribal youth of Nandurbar.

5.2 Research Conclusion:

The quantitative data collected from both the groups has resulted significant findings, the conclusion drawn from the research is as follows,

1. Based on the primary hypothesis H1, it is concluded that ICT training significantly boosts employment. The tribal youth who has completed ICT training in Office automation, computerized accounting or DTP has been employed or they were self-employed. Hence it can be said that there is a strong positive correlation between ICT training and employability.
2. The second hypothesis H2 has resulted an outcome indicating that the income level of ICT trained group is higher than untrained group, hence it is concluded that ICT training increased income level of tribal youth in Nandurbar.

5.3 Recommendation:

1. While training create an opportunity for employment, there is a requirement to establish a pathway for placement cells within training centres.

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2. A periodic review of ICT course curriculum is essential to match up with the changing demand of local IT employers.
3. In order to increase the impact of ICT training it is essential to establish the ICT infrastructure in the rural and tribal part of the country by setting up more professional training institutes, providing faster internet connectivity.
4. The training providers must establish a professional linkage with the ICT industries in order to supply the trained human resources and create employment.

5.4 Scope for Future Research:

1. A comprehensive research on similar respondents can be carried out for longer duration such as 3 to 5 years would result more specific outcomes regarding the drawbacks in ICT training, challenges faced by tribal youth such as technological, linguistic, social and economical while learning ICT skills.
2. The future research should include the qualitative approach along with quantitative to gain in-depth insights on required specific ICT skills, hiring preferences and understanding perceptions of tribal youth.
3. In future a study can be conducted on large scale covering all tribal districts of Maharashtra state to provide a comparative prospective on the effectiveness of ICT skills among tribal youth.

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