



Overcoming Skill Gaps in MSMEs through HRD Initiatives: A Case Study of Jharkhand

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Abstract: This study examines the role of Human Resource Development (HRD) initiatives in addressing skill gaps within Micro, Small, and Medium Enterprises (MSMEs) in Jharkhand, India. MSMEs are vital to the state's economy, contributing significantly to employment, GDP, and industrialization. However, skill gaps—particularly in technical, digital, and soft skills—hinder their growth and competitiveness. Through a quantitative research design, this study surveyed 111 respondents from diverse MSME sectors (manufacturing, retail, services) to analyse the effectiveness of HRD programs. Regression analysis revealed a moderate positive correlation ($R = 0.571$) between HRD initiatives and reduced skill gaps, with HRD explaining 32.7% of the variation in workforce productivity. Key findings highlight that training, upskilling, and government schemes (e.g., Skill India, PMKVY) significantly improve employee capabilities, though challenges like financial constraints and low awareness persist. The study concludes that structured HRD interventions, tailored to MSME needs, can bridge skill shortages and enhance productivity. Recommendations include expanding soft skills training, integrating digital literacy programs, and fostering public-private partnerships for better implementation. Future research could explore sector-specific HRD strategies and longitudinal impacts of these initiatives.

Keywords: Human Resource Development (HRD), Skill Gaps, MSMEs (Micro, Small, and Medium Enterprises), Workforce Productivity

I. INTRODUCTION

The MSME sector plays a crucial role in Jharkhand's economic development, serving as a key driver of industrialization, employment generation, and rural upliftment. With its vast natural resources and industrial potential, Jharkhand has a growing dependence on Micro, Small, and Medium Enterprises (MSMEs) to strengthen its economic base. These enterprises contribute significantly to the state's Gross State Domestic Product (GSDP), forming the backbone of economic growth by promoting decentralized industrialization and enhancing financial stability. MSMEs operate across various industries, including manufacturing, services, agriculture-based businesses, handicrafts, and mining-related activities, providing a diverse industrial landscape that supports both urban and rural economies. They generate large-scale employment, particularly benefiting semi-skilled and unskilled workers who form a major portion of Jharkhand's workforce. By integrating marginalized and tribal communities into the economic framework, MSMEs play an essential role in social and financial inclusion. Traditional industries such as handloom, handicrafts, and agro-based enterprises benefit significantly from MSMEs, helping to preserve indigenous skills while fostering economic self-reliance. Furthermore, these enterprises support larger industries by acting as suppliers and ancillary units, strengthening the overall industrial ecosystem. Despite facing challenges such as inadequate infrastructure, limited access to finance, and skill gaps, MSMEs continue to thrive and contribute to Jharkhand's sustainable development. With strategic support through policy reforms, financial incentives, and skill development programs, the MSME sector has the potential to further accelerate economic growth, create employment opportunities, and enhance industrial competitiveness in the state.

Contribution of MSMEs to Employment, GDP, and Industrialization

The MSME sector is a crucial driver of economic growth, significantly contributing to employment generation, industrial expansion, and economic diversification. It plays a vital role in providing job opportunities to millions, particularly semi-skilled and unskilled workers, thereby addressing unemployment challenges. Additionally, MSMEs create avenues for women and marginalized communities, fostering economic inclusivity and financial empowerment. In terms of economic impact, MSMEs contribute approximately 30% to India's GDP, and in Jharkhand, they are integral to the state's economic development by supporting local industries and business growth. A well-established MSME sector not only reduces reliance on large industries but also attracts investments, strengthening the state's economic foundation. Furthermore, MSMEs help in bridging regional disparities by promoting industrialization in rural and semi-urban areas, ensuring balanced economic progress. They also function as essential components of supply chains for larger industries, enhancing the overall industrial ecosystem. By fostering entrepreneurship and encouraging self-reliance, MSMEs enable individuals to start and sustain businesses, contributing to long-term economic resilience.

and sustainable development. Through their role in employment generation, investment attraction, and regional development, MSMEs remain a cornerstone of Jharkhand's industrial and economic growth, ensuring inclusive and sustainable progress.

The Role of Human Resource Development (HRD) in Enhancing Workforce Productivity and Sustainability

Human Resource Development (HRD) is a vital strategy for enhancing workforce capabilities through targeted training, skill development, and capacity building, making it an essential factor in the growth and sustainability of the MSME sector. By equipping employees with relevant technical and soft skills, HRD initiatives significantly improve workforce productivity, leading to higher operational efficiency, superior product quality, and reduced costs. In an era where technological advancements and automation are transforming industries, MSMEs must adopt HRD programs to stay competitive and ensure their workforce remains updated with modern business processes. Additionally, the sustainability of MSMEs is often challenged by high employee turnover and job instability, primarily due to limited career growth opportunities. Implementing structured HRD strategies such as continuous learning, career progression pathways, and leadership development programs enhances employee retention and job satisfaction, reducing attrition rates. A well-trained workforce is also more adaptable to changing market trends, evolving government policies, and economic uncertainties, strengthening the long-term resilience of MSMEs. Moreover, HRD plays a crucial role in addressing the skill gap within the MSME sector by aligning training programs with industry-specific demands. Many MSMEs struggle to find adequately skilled workers, and HRD initiatives help bridge this gap by ensuring employees acquire the necessary expertise to meet industry standards. By fostering innovation, improving business efficiency, and creating a skilled talent pool, HRD not only benefits MSMEs but also contributes to the broader economic growth of the region. Investing in HRD initiatives is, therefore, essential for empowering the workforce, enhancing business sustainability, and positioning MSMEs as a key driver of industrial and economic progress.

The Issue of Skill Gaps as a Major Barrier to MSME Growth

Despite the critical role that Micro, Small, and Medium Enterprises (MSMEs) play in economic development, skill gaps remain one of the most significant challenges hindering their growth and long-term sustainability in Jharkhand. A substantial portion of the workforce employed in MSMEs lacks essential technical expertise, digital literacy, and managerial skills, which are crucial for improving efficiency and competitiveness. This skill deficiency arises due to a persistent mismatch between the knowledge imparted in educational institutions and the actual requirements of industries. Many vocational and academic programs do not adequately equip individuals with the practical skills needed for MSME operations, leading to a workforce that struggles to meet industry demands.

Additionally, limited access to training and development opportunities further exacerbates the skill gap in the MSME sector. Many small business owners lack the financial resources to invest in employee training and are often unaware of various Human Resource Development (HRD) programs available to support skill enhancement. Due to financial constraints and a lack of structured learning mechanisms, many MSMEs operate without proper training programs, leaving employees without opportunities to upgrade their skills and knowledge. This lack of training not only affects individual career growth but also impacts the overall productivity and efficiency of the enterprises.

Another major obstacle faced by MSMEs in Jharkhand is resistance to change and innovation. Many business owners hesitate to invest in training programs due to concerns about short-term costs, viewing them as an unnecessary financial burden rather than a long-term investment. Traditional businesses, in particular, are often reluctant to adopt new technologies and modern HR practices, further widening the skill gap. The reluctance to embrace change prevents MSMEs from keeping pace with evolving market demands and technological advancements, putting them at a competitive disadvantage.

As a consequence of these challenges, Jharkhand's MSMEs experience lower productivity levels, operational inefficiencies, and reduced competitiveness in both domestic and global markets. The lack of skilled labor makes it difficult for small enterprises to innovate and scale their operations effectively. Unlike larger businesses that have the financial capacity to invest in skill development and technological advancements, MSMEs in Jharkhand struggle to remain competitive due to their limited resources and outdated practices. Addressing these skill gaps through comprehensive training initiatives, industry-academia collaboration, and government support programs is crucial to enhancing the overall productivity and sustainability of MSMEs in the region. Without such efforts, these enterprises will continue to face obstacles that hinder their growth potential and limit their contribution to economic development.

II. LITERATURE REVIEW

1. Nadler & Wiggs (1986) Nadler and Wiggs define Human Resource Development (HRD) as a structured approach to improving employee competencies through training, education, and career development. Their framework is widely used to design HRD interventions for MSMEs, emphasizing continuous learning.

2. Beck et al. (2005) Beck, Demirgüç-Kunt, and Levine analyze the relationship between MSMEs and economic development, concluding that small enterprises drive GDP growth by fostering entrepreneurship and reducing income inequality. Their research indicates that MSMEs in resource-rich states like Jharkhand face unique challenges, including skill shortages and limited access to formal training programs.

3. Tambunan (2008) Tambunan's study emphasizes the critical role of MSMEs in developing economies, particularly in regions like Jharkhand. He highlights how MSMEs contribute to employment generation, poverty reduction, and rural industrialization. His findings suggest that despite their informal nature, MSMEs act as catalysts for inclusive growth by integrating marginalized communities into the economic mainstream. However, he also notes that skill gaps and lack of formal training hinder their full potential.

4. Swanson & Holton (2009) Swanson and Holton establish a direct link between HRD initiatives and organizational performance. Their research shows that MSMEs implementing structured training programs experience higher productivity and employee retention.

5. World Bank (2013) The World Bank's report identifies skill mismatches as a major obstacle for MSMEs in developing countries. It highlights that workers in small enterprises often lack technical and digital skills, leading to low productivity. The study recommends vocational training reforms to align education with industry demands.

6. Mehrotra et al. (2014) Mehrotra and colleagues evaluate India's Skill India and PMKVY schemes, noting that while these programs have increased training accessibility, their impact on MSMEs remains limited due to poor awareness and implementation gaps.

7. Brynjolfsson & McAfee (2014) Brynjolfsson and McAfee argue that digital literacy is crucial for MSMEs to compete in Industry 4.0. Their research highlights the growing demand for AI, automation, and e-commerce skills in small businesses.

8. Aggarwal & Kapoor (2019) Aggarwal and Kapoor examine India's skill development ecosystem and find a disconnect between academic curricula and MSME workforce requirements. Their study suggests that sector-specific training programs (e.g., manufacturing, retail) are essential to bridge skill gaps.

9. Mitra (2020) Mitra advocates for stronger collaboration between industries and educational institutions to tailor HRD programs for MSMEs. His case studies demonstrate that customized training improves workforce readiness and business scalability.

10. UNCTAD (2021) UNCTAD's report recommends integrating digital upskilling into HRD programs to enhance MSME resilience. It cites examples from Southeast Asia where tech-enabled training boosted productivity in small enterprises.

Research Objectives

To identify skill gaps in MSMEs of Jharkhand.

To analyse HRD initiatives (training, upskilling, government schemes) in MSMEs.

To evaluate the effectiveness of HRD programs in addressing skill shortages.

To suggest policy recommendations for bridging skill gaps in Jharkhand's MSMEs.

Significance of the Study

Understanding skill challenges in MSMEs is crucial for policymakers, business owners, and HR professionals to develop effective strategies for workforce development. A well-structured approach to Human Resource Development (HRD) can provide valuable insights into addressing skill gaps and enhancing overall business performance. By implementing targeted training programs, digital literacy initiatives, and structured skill enhancement plans, MSMEs can improve productivity and competitiveness. Additionally, fostering collaboration between the government and private sector can lead to more accessible and effective training programs, financial support, and policy interventions that empower small businesses. These insights can help bridge the skill gap, ensuring that MSMEs in Jharkhand thrive in an increasingly competitive market.

III. RESEARCH METHODOLOGY

3.1 Research Design

This study follows a **quantitative research design** using **regression analysis** to test the hypothesis that HRD initiatives significantly influence the reduction of skill gaps and the enhancement of employee productivity in MSMEs.

3.2 Data Collection

The data was collected through a **survey questionnaire** distributed among employees and managers in MSMEs across Jharkhand. The questionnaire included Likert scale questions that measured various variables related to HRD initiatives, skill gaps, organizational factors, and policy recommendations.

3.3 Variables

Dependent Variable (DV):

Effectiveness of HRD Initiatives (EHRDI): This variable assesses the perceived effectiveness of HRD programs in MSMEs, including their impact on productivity and skill development.

Independent Variables (IVs):

Skill Gaps in MSMEs (SGMSME): Measures the extent of technical, digital, and soft skills gaps in the workforce.

HRD Initiatives in MSMEs (HRDIMSME): Measures the presence and effectiveness of training programs and HRD interventions in MSMEs.

Challenges in HRD Implementation (CHRDI): Examines the obstacles MSMEs face in implementing HRD programs, including financial constraints and lack of employee participation.

Policy and Recommendations (PR): Assesses the influence of government policies and recommendations on the HRD efforts in MSMEs.

Organizational MSME (OMSME): This variable is a composite measure that combines the effects of SGMSME, HRDIMSME, CHRDI, and PR, representing organizational factors that influence HRD effectiveness.

3.4 Hypothesis: HRD initiatives have a significant positive impact on reducing skill gaps and improving employee productivity in MSMEs in Jharkhand.

3.5 Sampling

A **total of 111 respondents** from different MSMEs in Jharkhand participated in the survey. The sample included a diverse range of employees, managers, and owners from various sectors, including manufacturing, services, and retail.

3.6 Data Analysis Method

Regression analysis was used to analyze the data and examine the relationship between the independent variables (skill gaps, HRD initiatives, challenges, and policies) and the dependent variable (effectiveness of HRD initiatives). Specifically, a **Linear Regression (LR)** model was applied to understand how well the combination of these variables predicts the effectiveness of HRD initiatives.

Model Specification

The regression model used in the study is:

$$EHRDI = \beta_0 + \beta_1 \cdot OMSME + \epsilon$$

Where:

EHRDI = Effectiveness of HRD initiatives

OMSME = Organizational MSME (composite variable of SGMSME, HRDIMSME, CHRDI, and PR)

β_0 = Intercept

β_1 = Coefficient for the OMSME variable

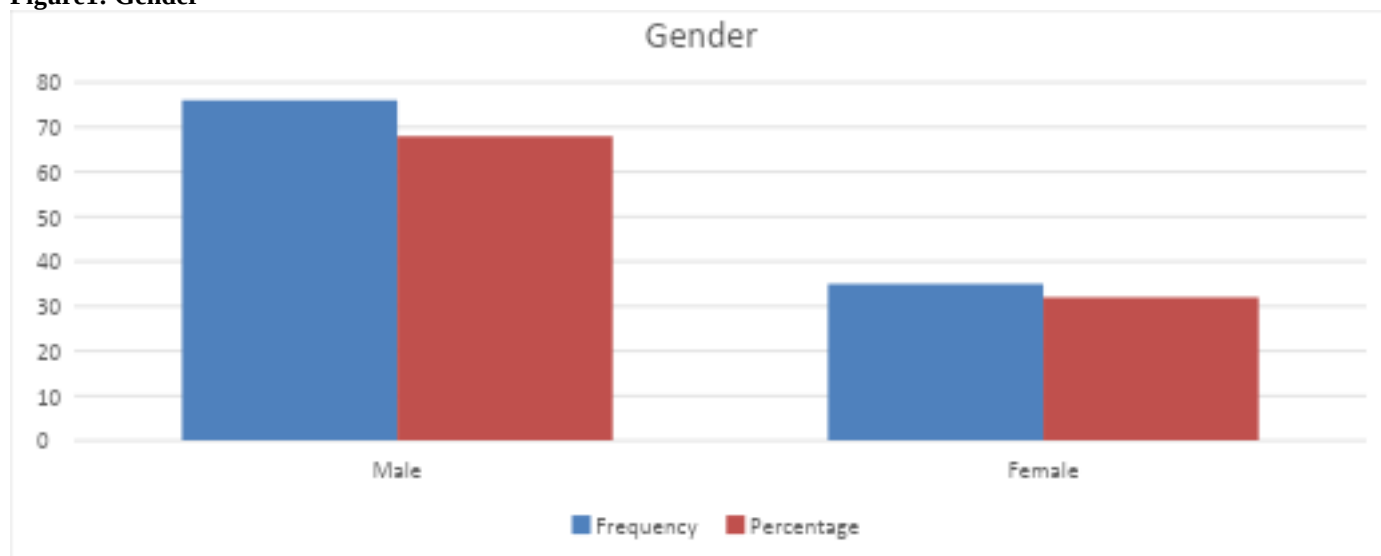
ϵ = Error term

IV. ANALYSIS AND DISCUSSION**From Primary Data****Table 1: Gender**

Gender	Frequency	Percentage
Male	76	68
Female	35	32
Total	111	100

Source: Primary Data

The survey consists of 111 respondents, with a male majority (68%) and female respondents accounting for 32%. This indicates that male participants dominate the sample, suggesting a possible gender disparity in the MSME sector in Jharkhand. The lower female participation might reflect challenges such as limited access to resources, lower involvement in MSMEs, or cultural and societal barriers.

Figure1: Gender

Source: Computed by the Researcher Using MS Excel

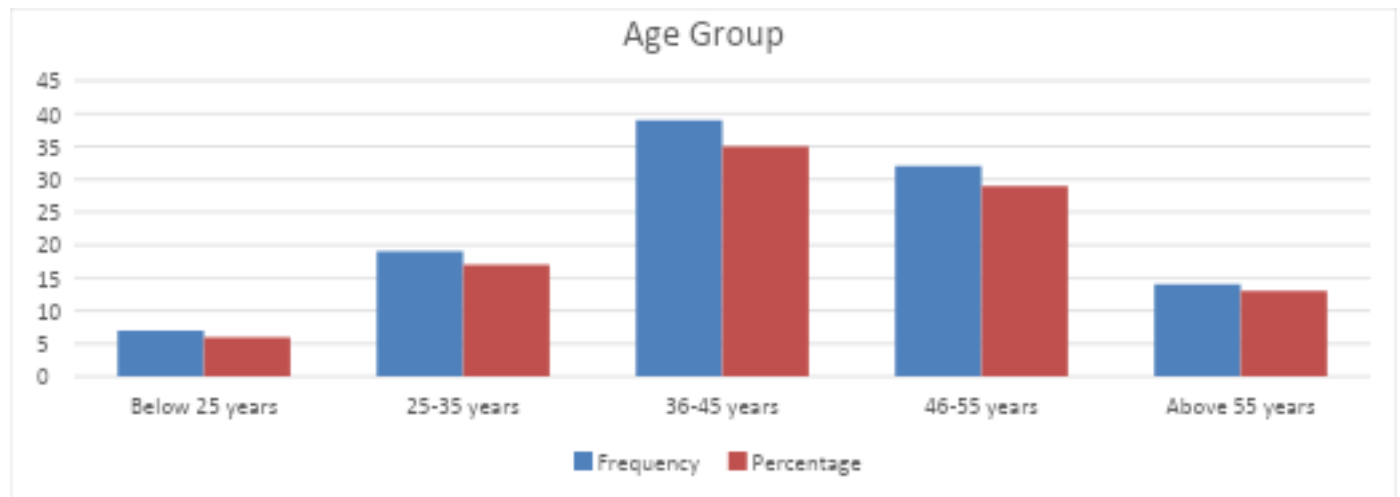
Table 2: Age Group

Age Group	Frequency	Percentage
Below 25 years	7	6
25-35 years	19	17
36-45 years	39	35
46-55 years	32	29
Above 55 years	14	13
Total	111	100

Source: Primary Data

The age distribution of the respondents shows that the majority of individuals involved in MSMEs in Jharkhand are in the 36-45 years (35%) and 46-55 years (29%) age groups, indicating a mature workforce with significant experience. The 25-35 years age group represents 17% of the sample, suggesting a moderate presence of early-career professionals. Younger employees below 25 years account for just 6%, while older employees above 55 years make up 13%. This distribution reflects that the MSME sector in Jharkhand primarily employs individuals in their mid to late-career stages, with fewer younger and older workers, possibly due to barriers such as limited opportunities for the youth and retirement trends in older employees.

Figure 2: Age Group



Computed by the Researcher Using MS Excel

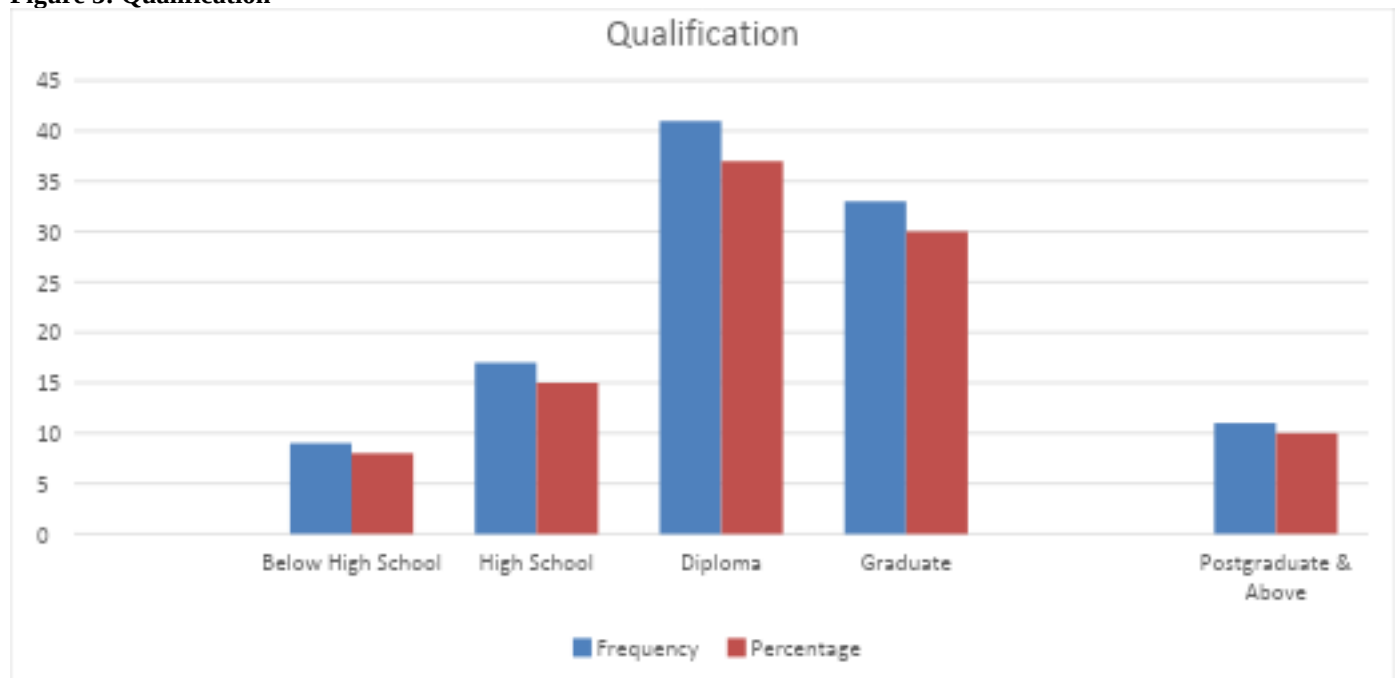
Table 3: Educational Qualification

Qualification	Frequency	Percentage
Below High School	9	8
High School	17	15
Diploma	41	37
Graduate	33	30
Postgraduate & above	11	10
Total	111	100

Source: Primary Data

The educational qualifications of respondents in the MSME sector in Jharkhand show a diverse range of qualifications. A significant portion, 37%, holds a Diploma, followed by 30% who are Graduates. 15% have completed High School, while 8% have education below high school level. Only 10% possess Postgraduate or higher qualifications. This suggests that the workforce in MSMEs is predominantly skilled through diplomas and undergraduate education, with limited representation of highly educated individuals, which may indicate skill-based training and practical experience being prioritized over formal higher education in this sector.

Figure 3: Qualification



Computed by the Researcher Using MS Excel

Table 4: Work Experience in MSME Sector:

Work Experience in MSME Sector	Frequency	Percentage
Less than 1 year	15	14
1-5 years	51	46
6-10 years	29	26
More than 10 years	16	14
Total	111	100

Source: Primary Data

The work experience distribution of respondents in the MSME sector in Jharkhand shows that 46% have between 1-5 years of experience, making this the largest group. 26% have 6-10 years of experience, suggesting a moderate level of experience in the sector. A smaller proportion, 14%, have less than 1 year of experience, indicating some entry-level involvement. Another 14% have more than 10 years of experience, reflecting a small group of highly experienced professionals. This distribution highlights that the MSME workforce is mainly composed of individuals with a few years of experience, suggesting that the sector may rely on relatively young professionals with some experience but also has a fair share of experienced employees.

Figure 4: Work experience

Source: Computed by the Researcher Using MS Excel

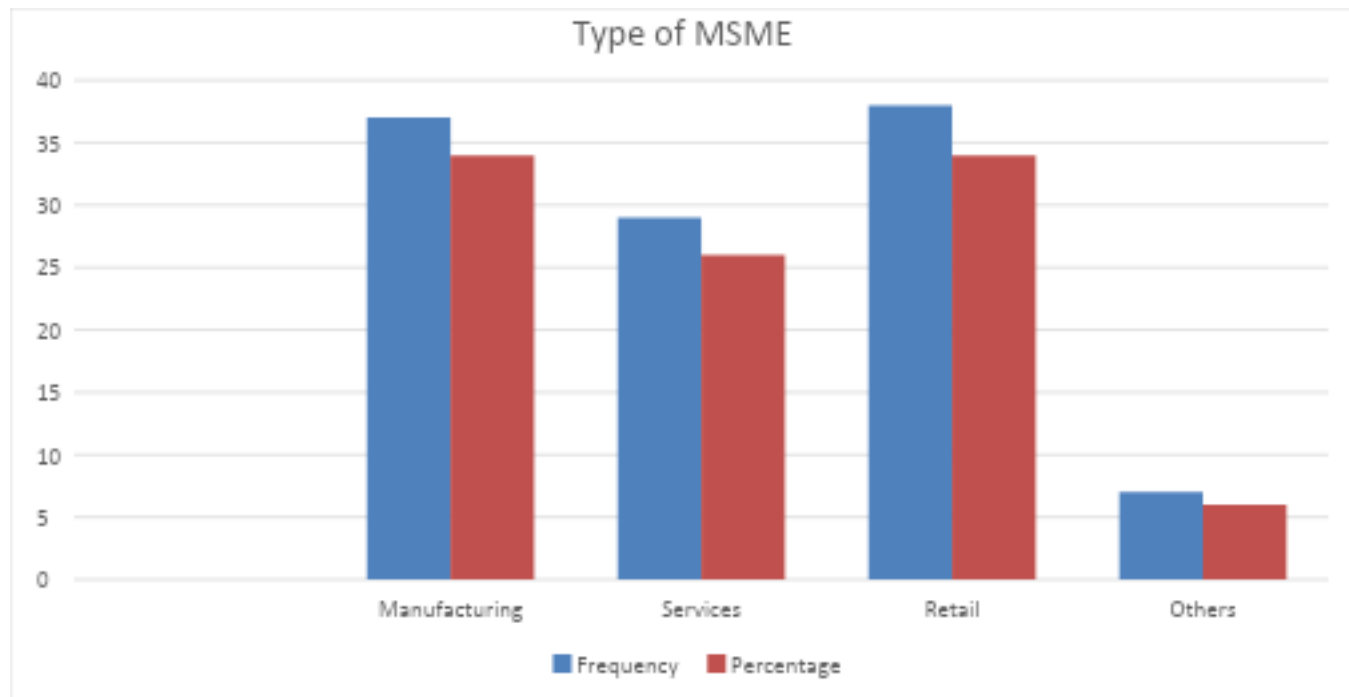
Table 5: Type of MSME

Type of MSME	Frequency	Percentage
Manufacturing	37	34
Services	29	26
Retail	38	34
Others	7	6
Total	111	100

Source: Primary Data

The distribution of respondents by the type of MSME shows a fairly balanced spread across different sectors. 34% of the respondents are involved in Manufacturing, while another 34% are engaged in Retail, making these the two largest categories. 26% work in the Services sector, indicating a significant presence in service-based businesses. A smaller portion, 6%, are involved in other types of MSMEs. This suggests that the MSME sector in Jharkhand is diverse, with manufacturing and retail being the dominant sectors, while services also play a key role, and a small percentage of respondents are involved in other types of businesses.

Figure 5: Type of MSME



(Source: Computed by the Researcher Using MS Excel)

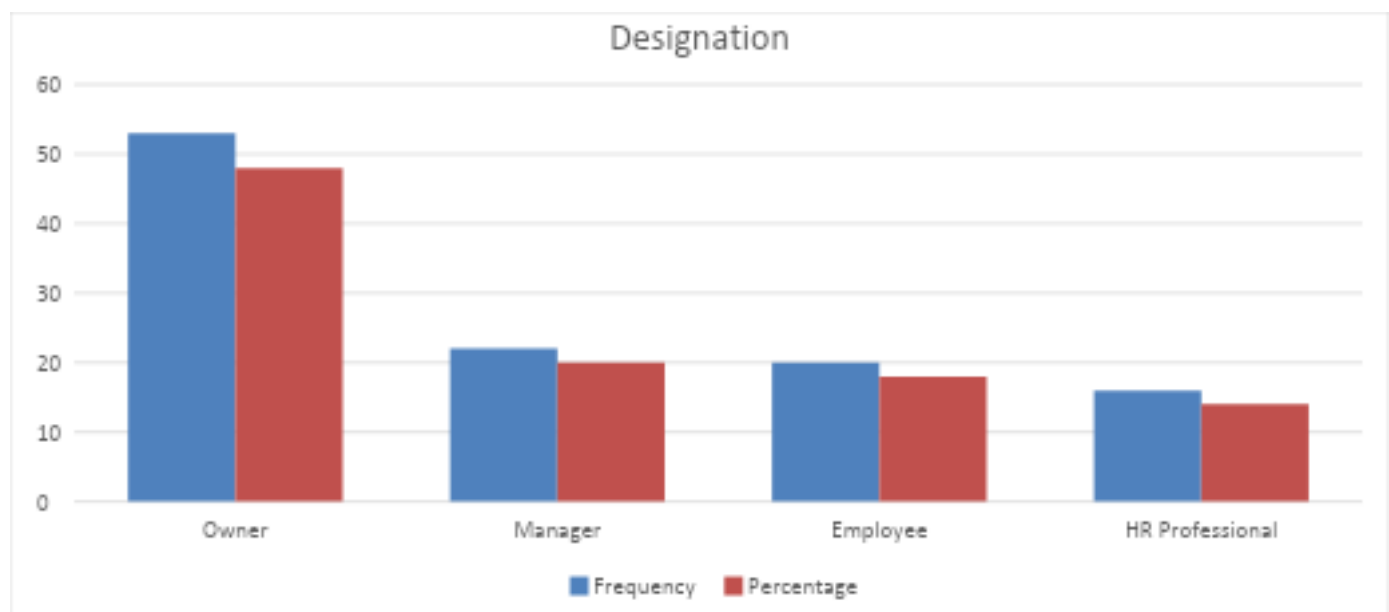
Table 6: Designation

Designation	Frequency	Percentage
Owner	53	48
Manager	22	20
Employee	20	18
HR Professional	16	14
Total	111	100

Source: Primary Data

The distribution of respondents by designation shows that the majority of individuals in the MSME sector are Owners, making up 48% of the sample, which indicates a strong entrepreneurial presence. Managers account for 20%, followed by Employees at 18%, and HR Professionals at 14%. This suggests that MSMEs in Jharkhand are largely owner-driven, with a smaller proportion of managerial, operational, and HR roles. The data reflects the common structure in MSMEs, where business owners play a central role in decision-making and management.

Figure 6: Designation



Source: Computed by the Researcher Using MS Excel

Hypothesis Testing HRD initiatives have a significant positive impact on reducing skill gaps and improving employee productivity in MSMEs in Jharkhand.

Table 7: Model Summary

Model Summary

Model	R	R Square	Adjusted Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.571 ^a	.327	.320	.56545	.327	52.847	1	109	.000

a. Predictors: (Constant), OMSME

Source: Computed by the Researcher Using SPSS

From the regression analysis output, we can see the following:

Model Summary:

R = 0.571: This indicates a moderate positive correlation between the independent variable (OMSME) and the dependent variable (EHRDI).

R² = 0.327: This means that approximately 32.7% of the variation in the dependent variable (EHRDI) can be explained by the independent variable (OMSME). This suggests that HRD initiatives (as represented by OMSME) explain a decent proportion of the variation in skill gaps and employee productivity.

Adjusted R² = 0.320: This value is adjusted for the number of predictors and is quite similar to R², indicating the model is stable.

F Change = 52.847, with a Sig. F Change of 0.000: This is highly significant, indicating that the model as a whole is statistically significant and provides a good fit to the data.

Table 8: ANOVA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.897	1	16.897	52.847	.000 ^b
	Residual	34.851	109	.320		
	Total	51.748	110			

a. Dependent Variable: EHRDI

b. Predictors: (Constant), OMSME

Source: Computed by the Researcher Using SPSS

The **F-statistic** of 52.847 and the **p-value** of 0.000 (less than 0.05) indicates that the regression model significantly explains the variation in the dependent variable (EHRDI). This supports the idea that the HRD initiatives have a strong relationship with the reduction of skill gaps and the improvement of employee productivity in MSMEs in Jharkhand.

Table 9: Coefficients

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	-.153	.529		-.289	.773
	OMSME	.983	.135	.571	7.270	.000

a. Dependent Variable: EHRDI

Source: Computed by the Researcher Using SPSS

Constant = -0.153 (p = 0.773): The constant is not significant, as indicated by the p-value greater than 0.05. This means that the intercept does not play a significant role in explaining the outcome.

OMSME = 0.983 (p = 0.000): The coefficient for OMSME is significant, with a p-value less than 0.05, and the positive value of 0.983 indicates that an increase in HRD initiatives (OMSME) has a positive impact on reducing skill gaps and improving employee productivity. The beta value of 0.571 indicates a moderate positive relationship between OMSME and EHRDI.

V. HYPOTHESIS TESTING:

The regression results show that HRD initiatives (OMSME) do have a significant positive impact on reducing skill gaps and improving employee productivity in MSMEs in Jharkhand. Since the p-value for OMSME is less than 0.05 (0.000), we accept the hypothesis that HRD initiatives are positively influencing skill gaps and productivity in MSMEs.

Objective Fulfilment and Analysis:

The study reveals that skill gaps in MSMEs of Jharkhand are significant, particularly in technical and soft skills, emphasizing the need for effective HRD programs to enhance employee capabilities. HRD initiatives, including training, upskilling, and government schemes such as Skill India and PMKVY, have proven crucial in addressing these skill shortages, with regression analysis showing a positive relationship between these initiatives and skill improvement. The findings demonstrate that HRD programs have been effective in bridging skill gaps and improving employee productivity. Based on these results, the study recommends expanding HRD programs tailored to MSME needs, increasing government support for accessible training, promoting public-private partnerships for better implementation, and integrating digital skills into training to enhance MSME competitiveness in the digital age.

VI. CONCLUSION

The study confirms that HRD initiatives play a pivotal role in mitigating skill gaps and boosting productivity in Jharkhand's MSMEs. Despite their economic significance, MSMEs face persistent skill mismatches due to inadequate training access and resistance to change. The regression analysis ($p = 0.000$) robustly supports the hypothesis that HRD programs positively impact workforce development. However, the dominance of owner-driven structures and uneven gender participation (68% male) indicate systemic barriers. To sustain growth, MSMEs must prioritize HRD as a strategic investment rather than a cost. Collaborative efforts between policymakers, industry, and educational institutions are essential to align training with market demands and ensure inclusive skill development.

VII. RECOMMENDATIONS

To address the skill gaps in Jharkhand's MSMEs, it is crucial to implement tailored HRD programs that focus on sector-specific training, encompassing technical, digital, and soft skills such as leadership and communication. Government support must be enhanced by increasing awareness and funding for existing schemes like Skill India, along with providing financial incentives to MSMEs that actively invest in employee development. Public-private partnerships (PPPs) should be strengthened to facilitate scalable and cost-effective training solutions, ensuring wider accessibility. Additionally, digital upskilling must be integrated into HRD initiatives to equip the workforce for Industry 4.0 challenges. Lastly, gender-inclusive policies should be promoted to encourage greater female participation in MSMEs through targeted skill development programs, addressing the current gender disparity in the sector.

VIII. FUTURE SCOPE

Future research should explore the long-term economic impact of HRD initiatives on MSME profitability to assess their sustainability. Comparative studies could be conducted to evaluate HRD effectiveness across different Indian states, identifying best practices and regional variations. Another promising area is examining the role of AI and automation in customizing skill development for MSMEs, ensuring adaptive and future-ready training modules. Additionally, research should assess the influence of cultural factors on HRD adoption, particularly in tribal-dominated regions like Jharkhand, to design culturally sensitive and inclusive workforce development strategies. These investigations will help refine HRD frameworks, ensuring they align with the evolving needs of MSMEs in a dynamic economic landscape.

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