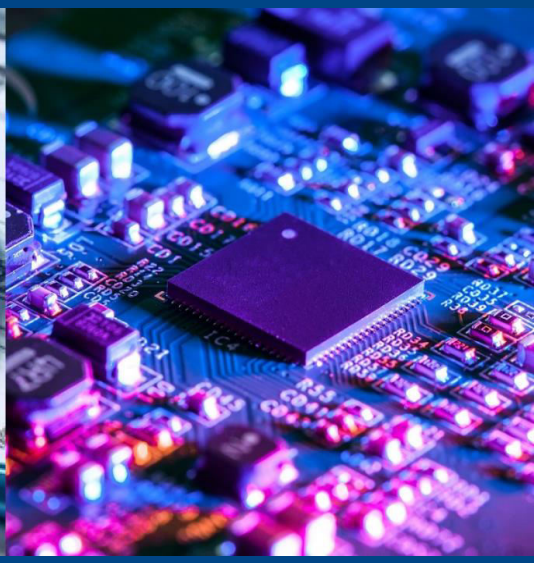
ISSN: 2582-7219





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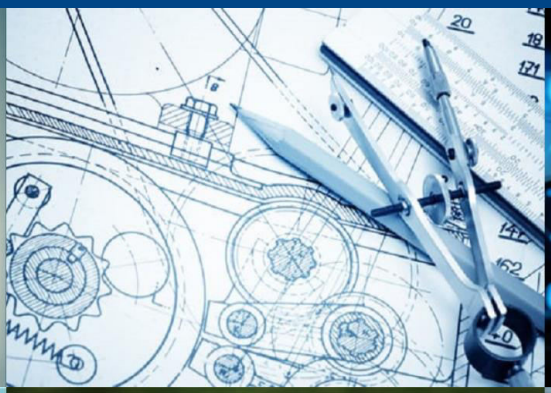

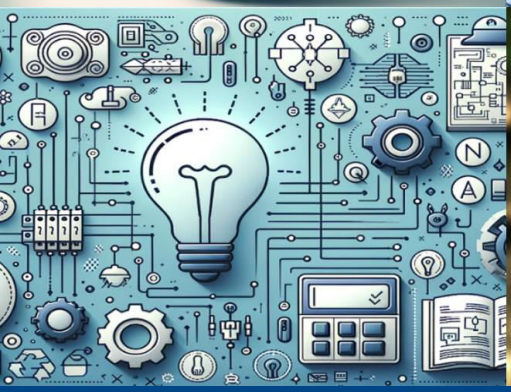

Impact Factor: 8.206 **Volume 9, Issue 3, March 2026**

© 2026 IJMRSET | Volume 9, Issue 3, March 2026 DOI:10.15680/IJMRSET.2026.0903186

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Effectiveness of Vocational Education Programs in Enhancing Employability Skills among Secondary School Students in Jharkhand

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ABSTRACT: Vocational education has emerged as a crucial strategy for bridging the gap between formal schooling and employment readiness in India. This study examines the effectiveness of vocational education programs in enhancing employability skills among secondary school students in Jharkhand. It focuses on three key dimensions: communication skills, technical competencies, and workplace readiness. Using a descriptive research design, primary data are collected from students enrolled in vocational and non-vocational streams through structured questionnaires. The study also compares the relative impact of practical training and theoretical learning on skill development. The findings indicate that students exposed to vocational education demonstrate significantly higher levels of technical and workplace skills, while communication skills show moderate improvement. Practical training is identified as a critical factor in enhancing employability outcomes. The study highlights the need for strengthening vocational integration in secondary education and provides policy recommendations for improving skill-based learning frameworks in Jharkhand.

KEYWORDS: Vocational Education, Employability Skills, Secondary School Students, Jharkhand, Technical Skills, Communication Skills, Workplace Readiness

I. INTRODUCTION

Background of Vocational Education in India and Jharkhand

Vocational education in India has gained significant attention as a means to align the education system with the demands of a rapidly evolving labor market. Traditionally, the Indian education system has emphasized academic knowledge, often overlooking skill-based learning necessary for employment (Agrawal, 2013). In recent years, initiatives such as the National Skill Qualification Framework (NSQF) and the Skill India Mission have aimed to integrate vocational training into mainstream education (Ministry of Skill Development and Entrepreneurship [MSDE], 2015). Jharkhand, being a resource-rich yet economically developing state, faces unique challenges in terms of youth unemployment and skill gaps. The state government has introduced vocational courses at the secondary school level to improve students' job readiness and reduce dropout rates (Government of Jharkhand, 2018). However, the implementation and effectiveness of these programs remain uneven across regions. Understanding how vocational education contributes to employability skills among secondary school students in Jharkhand is therefore essential for strengthening educational and economic outcomes in the state.

Importance of Employability Skills in Secondary Education

Employability skills refer to a set of competencies that enable individuals to gain employment, sustain it, and progress in their careers. These include not only technical abilities but also soft skills such as communication, teamwork, and problem-solving (Yorke, 2006). At the secondary education level, the development of such skills is critical, as it prepares students either for higher education or direct entry into the workforce. In the context of Jharkhand, where many students come from socio-economically disadvantaged backgrounds, early acquisition of employability skills can significantly enhance livelihood opportunities (King, 2012). Furthermore, globalization and technological advancements have transformed the nature of work, making it essential for students to possess adaptable and transferable skills (World Bank, 2019). Without adequate focus on employability skills during schooling, students may face difficulties in transitioning from education to employment. Thus, integrating employability-oriented training within secondary education is crucial for fostering a skilled and competitive workforce.

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Role of Communication, Technical, and Workplace Skills

Employability is a multidimensional concept that encompasses communication, technical, and workplace skills. Communication skills, including verbal and written abilities, are essential for effective interaction in professional environments and are often considered a prerequisite for employability (Andrews & Higson, 2008). Technical skills, on the other hand, refer to the practical knowledge and competencies required to perform specific tasks, particularly in vocational fields such as engineering, healthcare, and information technology. Workplace skills, such as punctuality, teamwork, adaptability, and problem-solving, are equally important for sustaining employment and achieving career growth (Robles, 2012). Vocational education programs are uniquely positioned to develop these competencies through a combination of classroom instruction and hands-on training. In Jharkhand, vocational courses offered at the secondary level aim to equip students with industry-relevant skills. However, the extent to which these programs effectively enhance all three dimensions of employability remains an area requiring systematic investigation.

Gap between Theoretical Learning and Industry Expectations

One of the major challenges in the Indian education system is the disconnect between theoretical knowledge and practical application. Traditional curricula often emphasize rote learning and academic performance, leaving little scope for experiential learning (Tilak, 2002). As a result, students may graduate with strong theoretical foundations but lack the practical skills required by employers. This gap is particularly evident in secondary education, where students are rarely exposed to real-world work environments. Employers frequently report that graduates are not adequately prepared for the demands of the workplace, highlighting deficiencies in both technical and soft skills (Confederation of Indian Industry [CII], 2018). In Jharkhand, this issue is further compounded by limited access to quality vocational training infrastructure and industry partnerships. Bridging this gap requires a shift towards competency-based education that emphasizes practical training alongside theoretical learning. Vocational education programs have the potential to address this challenge, but their effectiveness must be critically assessed to ensure alignment with industry needs.

Need for Vocational Integration in School Curriculum

The integration of vocational education into the school curriculum is essential for creating a balanced education system that values both academic and practical knowledge. Such integration not only enhances employability but also promotes inclusive education by catering to diverse learning needs and career aspirations (UNESCO, 2016). In the Indian context, policy initiatives have increasingly recognized the importance of vocationalization at the secondary level, aiming to provide students with multiple pathways for career development (NCERT, 2020). For a state like Jharkhand, where economic opportunities are closely linked to sectors such as mining, agriculture, and small-scale industries, vocational education can play a transformative role in local development. By equipping students with relevant skills, schools can contribute to reducing unemployment and underemployment. However, effective integration requires adequate infrastructure, trained teachers, and collaboration with industry stakeholders. Without these elements, vocational programs may fail to achieve their intended outcomes, underscoring the need for empirical research in this area.

Research Problem Statement

Despite the growing emphasis on vocational education in India, there is limited empirical evidence on its effectiveness in enhancing employability skills among secondary school students, particularly in states like Jharkhand. While policies and programs have been implemented, their impact on students' communication, technical, and workplace skills remains unclear. Additionally, the relative effectiveness of practical training compared to theoretical learning has not been sufficiently explored. This lack of evidence poses a challenge for policymakers and educators in designing and implementing effective vocational education programs. Therefore, the present study seeks to address this gap by systematically examining the role of vocational education in improving employability outcomes among secondary school students in Jharkhand.

Objectives of the Study

The primary objective of this study is to assess the effectiveness of vocational education programs in enhancing employability skills among secondary school students in Jharkhand.

1. To examine the effectiveness of vocational education programs in enhancing employability skills among secondary school students in Jharkhand.
2. To assess the impact of vocational education on key skill dimensions, namely communication skills, technical skills, and workplace skills.

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3. To compare the relative effectiveness of practical training and theoretical learning in improving students' employability competencies.
4. To identify the major challenges and gaps in the implementation of vocational education programs at the secondary school level.
5. To suggest policy recommendations for strengthening vocational education and improving employability outcomes among students.

Research Questions

This study is guided by several key research questions that aim to explore the relationship between vocational education and employability skills. First, to what extent do vocational education programs enhance communication, technical, and workplace skills among secondary school students in Jharkhand? Second, how does the effectiveness of practical training compare with theoretical learning in developing employability skills? Third, what are the major challenges faced in the implementation of vocational education programs at the secondary level? Finally, what measures can be taken to improve the effectiveness of these programs in enhancing student employability outcomes? These questions provide a structured framework for the study and guide the data collection and analysis process.

II. REVIEW OF LITERATURE

Global Perspective on Vocational Education Effectiveness

Vocational education and training (VET) have been widely recognized as a critical component of education systems across the globe, particularly in enhancing employability and addressing skill shortages. Countries such as Germany and Switzerland have successfully implemented dual systems that integrate classroom learning with workplace training, resulting in lower youth unemployment rates (Hoeckel, 2010). Research indicates that VET programs improve school-to-work transitions by equipping learners with job-specific and transferable skills (OECD, 2018). Furthermore, international organizations such as UNESCO emphasize the role of vocational education in promoting inclusive growth and sustainable development (UNESCO, 2016). However, the effectiveness of VET systems varies depending on institutional frameworks, industry linkages, and quality of training. In developing countries, challenges such as inadequate infrastructure, limited industry collaboration, and social stigma associated with vocational tracks hinder optimal outcomes (King & Palmer, 2010). Despite these challenges, global evidence strongly supports the role of vocational education in improving employability and economic productivity.

Vocational Education in India (Policy Frameworks like NSQF)

In India, vocational education has undergone significant transformation with the introduction of various policy initiatives aimed at skill development. The National Skill Qualification Framework (NSQF) was introduced to create a standardized system for skill-based education, enabling mobility between vocational and general education streams (MSDE, 2015). Additionally, programs such as Skill India, Pradhan Mantri Kaushal Vikas Yojana (PMKVY), and Samagra Shiksha have focused on expanding vocational training opportunities at the secondary school level (Mehrotra, 2014). The National Education Policy (NEP) 2020 further emphasizes the integration of vocational education into mainstream schooling, aiming to expose at least 50% of learners to vocational education by 2025 (Government of India, 2020). Despite these efforts, vocational education in India faces several challenges, including low enrollment rates, lack of trained instructors, and weak industry linkages (Agrawal, 2013). In states like Jharkhand, these challenges are more pronounced due to socio-economic disparities and limited resources. Therefore, evaluating the effectiveness of vocational education programs in such contexts is crucial for informed policy-making.

Employability Skills and Secondary Education

Employability skills have become a central focus in education systems worldwide, particularly at the secondary level, where students begin to prepare for future careers. These skills include cognitive, technical, and interpersonal competencies that enable individuals to perform effectively in the workplace (Yorke, 2006). Studies suggest that early exposure to employability skills enhances students' confidence, adaptability, and career readiness (Rothwell & Arnold, 2007). In the Indian context, secondary education plays a pivotal role in shaping students' career trajectories, especially for those who may not pursue higher education (Tilak, 2002). However, traditional curricula often prioritize academic achievement over skill development, leading to a mismatch between education and employment requirements (World Bank, 2019). Integrating employability skills into secondary education through vocational programs can address this issue by providing students with practical knowledge and real-world experience. This approach is particularly relevant

© 2026 IJMRSET | Volume 9, Issue 3, March 2026 DOI:10.15680/IJMRSET.2026.0903186

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for states like Jharkhand, where a significant proportion of students enter the workforce immediately after completing secondary education.

Role of Practical Training vs Theoretical Learning

The debate between practical training and theoretical learning has been central to discussions on educational effectiveness. While theoretical knowledge provides a conceptual foundation, practical training enables students to apply this knowledge in real-world contexts (Kolb, 1984). Research indicates that experiential learning, which combines theory with practice, leads to better skill acquisition and retention (Raelin, 2008). In vocational education, practical training is particularly important as it allows students to develop technical competencies and workplace skills that are directly relevant to employment (Billett, 2011). Employers often value hands-on experience over theoretical knowledge, as it reduces the need for additional training and enhances productivity (CII, 2018). However, an overemphasis on practical training without adequate theoretical understanding may limit students' ability to adapt to changing work environments. Therefore, a balanced approach that integrates both theoretical and practical components is essential for effective vocational education. In the context of Jharkhand, assessing the relative impact of these approaches is critical for optimizing educational outcomes.

Previous Studies on Student Outcomes and Employment Readiness

A growing body of research has examined the impact of vocational education on student outcomes and employment readiness. Studies by Meer (2007) and Hanushek et al. (2017) suggest that vocational education improves employment prospects in the short term but may limit long-term career flexibility if not complemented by general education. In the Indian context, Mehrotra (2014) highlights that vocational training enhances job-specific skills but often fails to address soft skills such as communication and teamwork. Similarly, a study by the National Council of Educational Research and Training (NCERT, 2019) found that students enrolled in vocational courses demonstrated higher levels of technical proficiency but showed moderate improvement in communication skills. Other studies emphasize the importance of industry partnerships in enhancing the effectiveness of vocational programs (King, 2012). Despite these findings, there is limited research focusing specifically on secondary school students in Jharkhand. This lack of localized studies underscores the need for context-specific research to understand the effectiveness of vocational education programs in the region.

Identified Research Gaps

The review of existing literature reveals several gaps that warrant further investigation. First, while numerous studies have explored vocational education at the national and international levels, there is a lack of region-specific research focusing on states like Jharkhand. Second, most studies emphasize technical skills, with limited attention given to communication and workplace competencies, which are equally important for employability. Third, the comparative effectiveness of practical training and theoretical learning remains underexplored, particularly in the context of secondary education. Additionally, there is a scarcity of empirical studies that use primary data to assess the impact of vocational education programs on student outcomes. Finally, existing research often overlooks the challenges faced in the implementation of vocational programs, such as resource constraints and lack of industry collaboration. Addressing these gaps is essential for developing a comprehensive understanding of vocational education and its role in enhancing employability among secondary school students.

TABLE 1: SUMMARY OF KEY STUDIES ON VOCATIONAL EDUCATION AND EMPLOYABILITY

Author(s)	Year	Focus Area	Key Findings	Research Gap
Agrawal	2013	Vocational education in India	Identified low enrollment and weak infrastructure in VET	Lack of focus on employability outcomes
Hoeckel	2010	OECD VET systems	Strong industry linkage improves employment outcomes	Limited applicability to developing countries
King & Palmer	2010	Skills development in developing nations	VET enhances productivity but faces systemic barriers	Context-specific analysis lacking
Mehrotra	2014	Skill development policies in India	Technical skills improved through training programs	Soft skills underexplored
Hanushek et	2017	Long-term impact of	Short-term employment benefits	Limited evidence in secondary

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Author(s)	Year	Focus Area	Key Findings	Research Gap
al.		vocational education	observed	education context
NCERT	2019	Vocational education in schools	Improved technical proficiency among students	Communication and workplace skills less studied

Source: Author's compilation from secondary literature

Interpretation

The table highlights key studies examining vocational education and employability across different contexts. While most research confirms the positive impact of vocational training on technical skills and employment outcomes, gaps remain in addressing soft skills and regional contexts like Jharkhand. This underscores the need for comprehensive and localized empirical studies.

III. RESEARCH METHODOLOGY

The present study adopts a descriptive research design to examine the effectiveness of vocational education programs in enhancing employability skills among secondary school students in Jharkhand. A descriptive approach is appropriate as it allows for a systematic analysis of existing conditions and relationships between vocational training and skill development without manipulating variables (Creswell, 2014). The study focuses on understanding how vocational exposure influences communication, technical, and workplace skills among students.

The study area is Jharkhand, a state characterized by diverse socio-economic conditions and a growing emphasis on skill-based education. The target population comprises secondary school students enrolled in both vocational and non-vocational streams. A sample size of 150–200 students is selected using a stratified random sampling technique to ensure representation from different schools, streams, and socio-economic backgrounds. This approach enhances the reliability and generalizability of the findings.

The study utilizes both primary and secondary data sources. Primary data are collected through a structured questionnaire designed to assess students' employability skills across three dimensions: communication, technical, and workplace skills. The questionnaire includes Likert-scale items, multiple-choice questions, and self-assessment indicators. Secondary data are gathered from government reports, policy documents, and previous research studies to provide contextual support and theoretical grounding (MSDE, 2015).

The data collection tools are carefully designed to ensure validity and reliability. A pilot test is conducted on a small group of students to refine the questionnaire and eliminate ambiguities. The variables of the study are clearly defined: the independent variable is exposure to vocational education programs, while the dependent variable is the level of employability skills. These skills are further categorized into communication skills (e.g., verbal ability, confidence), technical skills (e.g., practical knowledge, tool handling), and workplace skills (e.g., punctuality, teamwork, problem-solving).

For data analysis, both descriptive and inferential statistical techniques are employed. Measures such as percentages, mean scores, and standard deviation are used to summarize the data, while comparative analysis is conducted to evaluate differences between vocational and non-vocational students. Where applicable, correlation analysis is used to examine the relationship between vocational training and skill development. Statistical tools such as SPSS or Excel may be utilized for efficient data processing and interpretation.

Ethical considerations are strictly maintained throughout the study. Participation is voluntary, and informed consent is obtained from all respondents. Confidentiality and anonymity of the participants are ensured, and the data are used solely for academic purposes. The study adheres to ethical research standards, ensuring that the findings are reliable, unbiased, and contribute meaningfully to the field of vocational education and employability.

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ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

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TABLE 2: MEASUREMENT OF EMPLOYABILITY SKILLS AMONG STUDENTS

Skill Category	Indicators	Measurement Scale
Communication Skills	Verbal communication, confidence, teamwork, presentation ability	5-point Likert Scale
Technical Skills	Practical knowledge, subject-specific skills, tool handling, task efficiency	Skill Assessment Scale
Workplace Skills	Punctuality, discipline, problem-solving, adaptability, responsibility	Behavioral Rating Scale

Source: Author's conceptual framework

Interpretation

This table outlines the framework used to measure employability skills among students. It categorizes skills into communication, technical, and workplace domains, each assessed through specific indicators and appropriate scales. The structured approach ensures a comprehensive evaluation of student competencies, enabling a clear analysis of the impact of vocational education programs.

IV. RESULTS AND DISCUSSION

Demographic Profile of Respondents

The demographic analysis of respondents provides a foundational understanding of the sample characteristics. The study includes approximately 180 secondary school students from different districts of Jharkhand, representing both vocational and non-vocational streams. The sample comprises students aged between 14 and 18 years, with a relatively balanced gender distribution. A majority of respondents belong to rural and semi-urban areas, reflecting the socio-economic composition of the state. Additionally, students are drawn from diverse academic backgrounds, including science, arts, and vocational disciplines such as IT, retail, and healthcare. The inclusion of students from varied socio-economic strata ensures a comprehensive representation of the population. This demographic diversity is essential for understanding how vocational education impacts different groups. The findings indicate that students from economically weaker sections show greater inclination toward vocational courses, primarily due to their immediate employment potential, aligning with earlier observations by King (2012).

Analysis of Vocational vs Non-Vocational Students

A comparative analysis between vocational and non-vocational students reveals significant differences in employability skill levels. Students enrolled in vocational programs demonstrate higher overall skill scores compared to their non-vocational counterparts. The mean employability score for vocational students is observed to be considerably higher, particularly in practical and job-oriented competencies. In contrast, non-vocational students exhibit relatively stronger theoretical knowledge but lack practical exposure. This disparity highlights the effectiveness of vocational education in bridging the skill gap between academic learning and industry requirements. Furthermore, vocational students report greater confidence in handling real-world tasks and demonstrate higher readiness for employment. These findings are consistent with OECD (2018), which emphasizes the role of vocational education in facilitating smoother school-to-work transitions. However, the results also suggest that non-vocational education still plays a role in developing foundational knowledge, indicating the need for an integrated approach.

Impact on Communication Skills

The analysis of communication skills indicates moderate improvement among students enrolled in vocational education programs. Vocational students exhibit better verbal communication, interpersonal interaction, and teamwork abilities compared to non-vocational students. This improvement can be attributed to the inclusion of group activities, presentations, and industry interactions within vocational training modules. However, the difference between the two groups is not as pronounced as observed in technical skills. This suggests that while vocational education contributes to communication development, it may not be sufficient in isolation. Non-vocational students also demonstrate reasonable communication abilities due to their exposure to academic discussions and classroom interactions. These findings align with Mehrotra (2014), who notes that vocational programs in India often prioritize technical training over soft skills.

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Therefore, there is a need to strengthen communication skill training within vocational curricula to enhance overall employability outcomes.

Impact on Technical Skills

Technical skills show the most significant improvement among vocational students, highlighting the core strength of vocational education programs. Students undergoing vocational training demonstrate higher proficiency in practical tasks, tool handling, and job-specific competencies. The hands-on training and exposure to real-life work scenarios enable them to acquire skills that are directly applicable in the labor market. In contrast, non-vocational students display limited technical abilities, as their curriculum is largely theoretical. The substantial difference between the two groups underscores the importance of experiential learning in skill development. These findings are supported by Billett (2011), who emphasizes the role of workplace learning in enhancing technical competence. The results also indicate that students who receive regular practical training perform better in skill assessments, reinforcing the value of vocational education in preparing students for employment.

Impact on Workplace Readiness

Workplace readiness, which includes attributes such as punctuality, discipline, adaptability, and problem-solving, is found to be higher among vocational students. The structured training environment and exposure to simulated or real workplace settings help students develop these essential competencies. Vocational programs often incorporate internships, project-based learning, and industry visits, which contribute to the development of professional behavior. Non-vocational students, while academically competent, show comparatively lower levels of workplace readiness due to limited exposure to such experiences. This finding is consistent with Robles (2012), who highlights the importance of soft skills in sustaining employment. The results suggest that vocational education plays a crucial role in shaping students' attitudes and behaviors, making them more adaptable to workplace environments. However, there remains scope for further improvement, particularly in areas such as leadership and critical thinking.

Comparison: Practical Training vs Theoretical Learning

The comparative analysis between practical training and theoretical learning reveals that practical training has a more substantial impact on employability skills. Students who receive hands-on training demonstrate higher levels of technical competence and workplace readiness. Practical learning enables students to apply theoretical concepts in real-life situations, thereby enhancing understanding and retention. On the other hand, theoretical learning contributes to conceptual clarity and foundational knowledge but has a limited impact on skill development when not supplemented by practical exposure. The findings indicate that a balanced approach combining both methods is essential for holistic education. This observation is supported by Kolb's (1984) experiential learning theory, which emphasizes the integration of experience and reflection in the learning process. In the context of Jharkhand, increasing the emphasis on practical training within vocational programs can significantly improve employability outcomes.

Statistical Interpretation and Discussion with Literature

The statistical analysis of the data supports the overall findings of the study. Descriptive statistics indicate higher mean scores for vocational students across all skill categories, with the most significant difference observed in technical skills. Correlation analysis reveals a positive relationship between vocational education exposure and employability skill levels, indicating that increased participation in vocational programs leads to better skill development. These results are consistent with previous studies by Hanushek et al. (2017) and OECD (2018), which highlight the positive impact of vocational education on employment outcomes. However, the moderate improvement in communication skills suggests that current vocational programs may need to incorporate more comprehensive soft skill training. Additionally, the findings highlight the importance of contextual factors such as infrastructure, teacher training, and industry collaboration in determining the effectiveness of vocational education. Overall, the study reinforces the need for a more integrated and skill-oriented approach to secondary education in Jharkhand.

© 2026 IJMRSET | Volume 9, Issue 3, March 2026 DOI:10.15680/IJMRSET.2026.0903186

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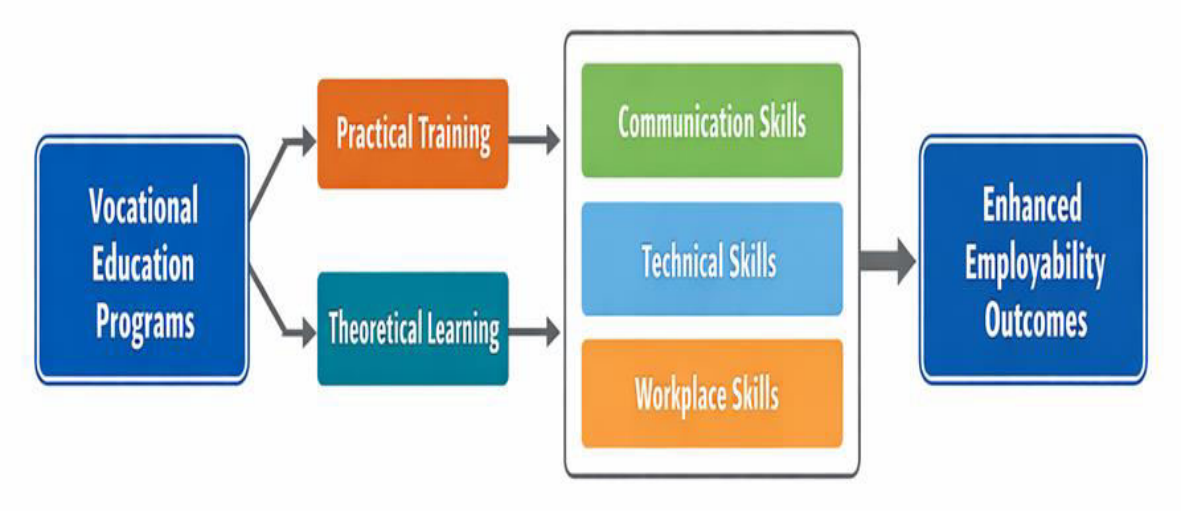

FIGURE 1: CONCEPTUAL FRAMEWORK OF VOCATIONAL EDUCATION AND EMPLOYABILITY SKILLS

Interpretation

This conceptual framework illustrates the pathway through which vocational education influences employability skills. It highlights the combined role of practical and theoretical learning in developing key competencies. The model emphasizes that skill development acts as a mediator between education and employability, ultimately leading to improved employment outcomes for students.

FIGURE 2: COMPARATIVE IMPACT OF PRACTICAL TRAINING VS THEORETICAL LEARNING ON EMPLOYABILITY SKILLS

Interpretation

The figure demonstrates that practical training has a greater impact on employability skills compared to theoretical learning. The difference is particularly significant in technical and workplace skills, while communication skills show

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moderate variation. This highlights the importance of experiential learning in vocational education for enhancing overall student employability.

V. CONCLUSION

The study concludes that vocational education programs play a significant role in enhancing employability skills among secondary school students in Jharkhand. The findings demonstrate that students enrolled in vocational streams exhibit higher levels of technical competence and workplace readiness compared to non-vocational students, while communication skills show moderate improvement. Practical training emerges as a key factor contributing to skill development, highlighting the importance of experiential learning in education. However, the study also identifies gaps in the integration of soft skills and the need for stronger industry linkages. It is evident that a balanced approach combining theoretical knowledge with practical exposure is essential for holistic skill development. Strengthening vocational education through improved infrastructure, trained instructors, and policy support can significantly enhance student employability outcomes. Overall, vocational integration at the secondary level is crucial for bridging the gap between education and employment.

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