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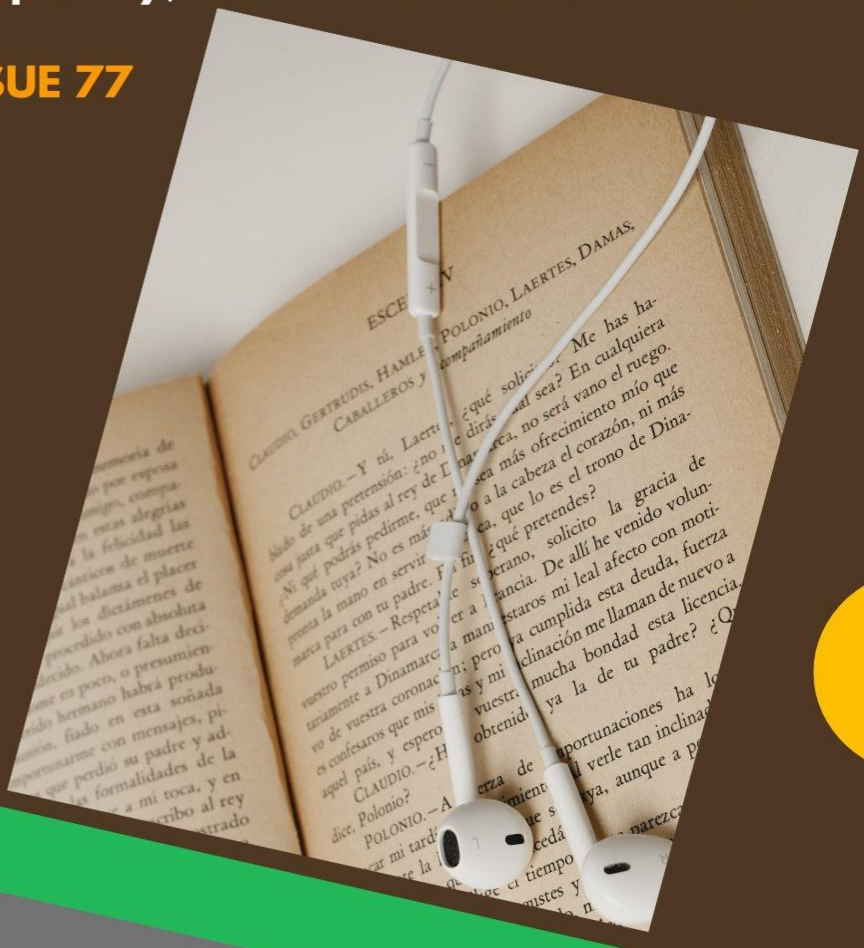

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Its 77rd issues have been published without any break since its inception.

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EDITORIAL

Jamshedpur Research Review
Year 14, Volume 2, Issue 77

The present issue of *Jamshedpur Research Review* presents a diverse and insightful collection of scholarly works reflecting the complexity of contemporary academic inquiry. The contributions span multiple disciplines, including political thought, history, education, economics, law, environment, and culture. In a period marked by rapid transformation driven by globalization, technological advancement, and socio-political change, the need for interdisciplinary and context-sensitive research is more critical than ever. The papers in this volume combine theoretical depth with empirical relevance, contributing meaningfully to both academic discourse and policy discussions.

The opening paper revisits the philosophical framework of cultural nationalism and Integral Humanism. By engaging with the ideas of Deendayal Upadhyaya, it highlights an alternative vision of development rooted in Indian cultural values and human-centric principles. Unlike purely materialistic models, this approach emphasizes holistic development across physical, intellectual, and spiritual dimensions. In today's context of economic growth accompanied by social inequalities, the idea of Antyodaya—upliftment of the last person—remains highly relevant. The paper contributes to rethinking indigenous intellectual traditions as viable frameworks for contemporary governance and inclusive development.

The issue then moves to a historical exploration of the relationship between science and education in ancient Greco-Roman society. This study challenges the assumption that science and education have always been mutually reinforcing by demonstrating how scientific inquiry was often marginalized in antiquity. It reveals that knowledge systems are shaped by power structures and ideological influences. In the modern context, where innovation and interdisciplinary approaches are emphasized, this analysis underscores the importance of integrating scientific thinking within broader educational frameworks.

Urbanization and its challenges are examined through a case study of rural–urban migration in Jamshedpur. As an industrial center, the city reflects both the opportunities and pressures of rapid urban growth. Migration contributes to economic development but also intensifies issues related to infrastructure, housing, and environmental degradation. The paper's focus on ecological impacts is particularly significant, as it highlights the need for sustainable urban planning. In the face of expanding urban populations across India, such research is vital for balancing development with environmental preservation.

Economic transformation is further explored through the study on entrepreneurship and human capital development among youth. By emphasizing the importance of skills, education, and competence, the paper highlights how innovation can be fostered through investment in human capital. India's demographic advantage can only be realized if young individuals are equipped with the necessary capabilities to participate in and drive economic growth. In the current context of expanding startup ecosystems, the findings underscore the importance of supportive policies and institutional frameworks.

The theme of justice is addressed in the study on remission of sentences and victims' rights. It raises important concerns about transparency, accountability, and the limited role of victims in the remission process. By advocating a more balanced approach, the paper contributes to ongoing debates on criminal justice reform. In recent years, discussions around constitutional morality and victim participation have gained prominence, making this research particularly relevant.

Another significant contribution examines digital transformation in education through Learning Management Systems within the Open and Distance Learning framework. The rapid expansion of online education has reshaped the learning landscape, offering new opportunities while also exposing challenges such as digital inequality and learner engagement. The study emphasizes the need to bridge

the digital divide and enhance the effectiveness of online learning platforms to ensure equitable access to education.

The exploration of the Kanwar Yatra brings attention to the cultural and experiential dimensions of pilgrimage. Beyond its religious significance, pilgrimage has implications for health, community bonding, and regional economies. In contemporary discussions on well-being and holistic lifestyles, such studies highlight the continuing relevance of traditional practices.

Cultural preservation is further addressed through the study of performing arts traditions in North-East India. Despite pressures from modernization and globalization, these traditions continue to thrive due to strong community participation and cultural resilience. The paper underscores the importance of safeguarding indigenous cultural expressions, which contribute not only to identity but also to tourism and cultural diplomacy.

Regional disparities in development are examined through a comparative study of Kerala and Jharkhand. The contrast between the two states highlights how socio-economic and historical factors influence educational outcomes. The findings emphasize the need for context-specific policies that address regional inequalities and promote inclusive growth.

The discussion on the National Education Policy 2020 reinforces the central role of education in national development. With its emphasis on multidisciplinary learning and technological integration, the policy offers a transformative vision. However, its success depends on effective implementation and institutional capacity, making continued evaluation essential.

Issues of land reform and social justice are highlighted in the study on tea estate reclamation in West Bengal, which reveals the challenges faced by marginalized communities due to administrative inefficiencies. Similarly, the paper on identity-based movements in North Bengal sheds light on the complexities of federalism and regional aspirations.

Environmental concerns are addressed through studies on bamboo production and livelihood diversification in Haryana, both of which emphasize sustainability and rural resilience. The impact of climate change on agriculture, as seen in the Bankura study, further highlights the urgency of adaptive strategies. Lastly, the analysis of banking services in Manipur underscores the importance of customer-centric approaches in promoting financial inclusion.

Collectively, the papers in this issue reflect the interconnected nature of contemporary challenges. They demonstrate the value of holistic approaches in understanding development, governance, and social transformation. As the world faces issues such as inequality, environmental degradation, and technological disruption, research plays a crucial role in shaping informed responses.

This issue of *Jamshedpur Research Review* aims to contribute to this broader endeavor by presenting diverse perspectives and encouraging critical engagement. It is hoped that the insights offered here will inspire further research and support the pursuit of a more inclusive, sustainable, and informed society.

— **Editor**

Date: 1 March 2026

Jamshedpur

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CULTURAL NATIONALISM AND INTEGRAL HUMANISM OF DEENDAYAL UPADHYAYA: RELEVANCE IN CONTEMPORARY INDIAN POLITICAL THOUGHT

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Abstract

This study examines the cultural nationalism and political thought of Deendayal Upadhyaya and analyzes their contemporary relevance. In the rich tradition of Indian political philosophy, Upadhyaya occupies a distinctive position for propounding the doctrine of Integral Humanism**,** which is rooted in Indian culture and worldview. This philosophy does not view human life merely from an economic perspective; rather, it emphasizes the integrated development of the physical, mental, intellectual, and spiritual dimensions of human existence (Upadhyaya, 1965). According to Upadhyaya, a nation is not merely a political or geographical entity but a living cultural consciousness whose foundation lies in Indian culture, traditions, and collective values. While examining Western ideologies such as capitalism and socialism, he highlighted their limitations and proposed an alternative developmental perspective suited to Indian conditions (Upadhyaya, 1965; Thengadi, 2008). This study examines the cultural nationalism and political philosophy of Deendayal Upadhyaya and evaluates their relevance in the context of contemporary India. Within the rich tradition of Indian political thought, Upadhyaya occupies a significant position for articulating the doctrine of Integral Humanism, which is rooted in Indian cultural values and philosophical traditions. Unlike modern development models that primarily emphasize economic growth, Integral Humanism advocates the holistic development of human beings through the balanced integration of physical, mental, intellectual, and spiritual dimensions (Upadhyaya, 1965). The study explores Upadhyaya's conception of the nation as a living cultural entity based on shared traditions, values, and collective consciousness. It critically analyzes his response to Western ideological frameworks, particularly capitalism and socialism, and highlights his attempt to formulate an alternative development paradigm suited to Indian socio-cultural conditions (Thengadi, 2008). The research also examines the continuing relevance of his ideas in addressing contemporary challenges such as social inequality, developmental imbalance, cultural identity, and ethical governance. Furthermore, the study analyzes the influence of his philosophy on contemporary Indian political discourse, including policy frameworks associated with inclusive development and the concept of *Antyodaya*—the upliftment of the last person.

The findings suggest that Integral Humanism provides a human-centered and culturally rooted framework for balanced development. Although its complete implementation requires reinterpretation in the context of globalization and modern governance, Upadhyaya's philosophy continues to offer valuable intellectual guidance for contemporary policy debates and socio-political development in India.

Keywords: Integral Humanism, Cultural Nationalism, Indian Political Thought, Human-Centered Development, Antyodaya, Social Harmony, Decentralization, Contemporary Indian Politics Swadeshi**,** Inclusive Development

The concept of Integral Humanism**,** articulated by Upadhyaya, represents a comprehensive socio-economic and political philosophy based on the Indian intellectual tradition. Its primary aim is to establish a balanced and harmonious relationship among the individual, society, nation, and nature. The philosophy critically evaluates Western ideological frameworks—particularly capitalism and socialism—and presents an alternative developmental model grounded in Indian cultural and spiritual values (Upadhyaya, 1965).

The core principle of Integral Humanism is that human beings are not driven solely by material needs. Rather, human life requires the balanced development of four dimensions: body, mind, intellect, and soul. Similarly, society is not merely an economic structure but a living organism guided by cultural and ethical values. According to Upadhyaya, the true foundation of a nation lies in its culture, *dharma* (understood not as religion but as moral order), and social unity (Upadhyaya, 1965; Kulkarni, 2017).

This philosophy accepts the balanced concept of the four Purusharthas—Dharma, Artha, Kama, and Moksha—and argues that the goal of economic development should not merely be the expansion of production and consumption but the promotion of human welfare and social harmony. In this context, Integral Humanism emphasizes decentralized economic systems, Swadeshi, village-based development, and social justice (Thengadi, 2008).

The study reveals that Integral Humanism offers a holistic perspective for addressing several problems associated with modern development models, such as economic inequality, cultural disintegration, and moral decline. This philosophy occupies an important place in Indian political thought and continues to remain relevant in contemporary policy discourse as an alternative model of development. In conclusion, it can be stated that the philosophy of Integral Humanism proposed by Deendayal Upadhyaya represents a significant attempt to synthesize Indian philosophical traditions, cultural values, and modern social needs. It establishes a framework for human-centered, ethical, and balanced development.

Evaluation of the Social and Political Thought of Deendayal Upadhyaya in the Context of Contemporary India

The social and political ideas of Deendayal Upadhyaya are deeply rooted in the structure of Indian society, cultural traditions, and ethical values. The doctrine of Integral Humanism, propounded by him, aims to establish harmony between the individual, society, and the nation. In the context of contemporary India, where challenges such as growing economic inequality, social fragmentation, cultural crises, and the erosion of political morality are increasingly visible, his ideas appear particularly significant (Upadhyaya, 1965; Upadhyaya, 2002).

From a social perspective, Upadhyaya envisioned a society based on social harmony, cultural unity, and human values. In present-day India, issues such as caste tensions, regional imbalances, and social inequalities highlight the continued need to establish balance and coordination among various sections of society. In this context, his concept of a harmonious **society** provides an important ideological foundation for strengthening social unity (Thengadi, 2008).

Similarly, Integral Humanism emphasizes that development should not be confined solely to economic growth but should focus on the holistic development of the human being, including physical, mental, intellectual, and spiritual dimensions. In addressing contemporary challenges such as economic inequality, rural-urban disparities, and imbalanced development, this philosophy provides an important ideological foundation for an inclusive and human-centered development modelHe viewed political power not merely as an instrument of governance but as a means of social service. Contemporary Indian politics faces several challenges, including corruption, excessive centralization of power, and limited public participation in policy-making. These issues further underline the relevance of his ideas. According to him,

democracy can be effective only when governance operates according to the needs of society and is guided by moral values (Upadhyaya, 2002).

His ideas are equally significant in the economic sphere. Upadhyaya advocated a development policy that should not be confined solely to economic growth but should focus on human welfare, self-reliance, and the proper utilization of local resources. In the present era of globalization and market-driven economies, this perspective offers an alternative pathway toward inclusive and balanced development (Thengadi, 2008).

Thus, in the context of contemporary India's social, political, and economic challenges, Upadhyaya's ideas provide valuable ideological guidance. Although certain limitations may appear in their practical application under changing circumstances, his philosophy nevertheless presents a balanced and human-centered model of development aligned with the fundamental needs of Indian society. Consequently, his social and political ideas continue to serve as important reference points in Indian policy discourse and social reconstruction.

Influence of Deendayal Upadhyaya's Ideas in Contemporary Indian Politics, Particularly under the Narendra Modi Government

The philosophy of Integral Humanism**,** propounded by Deendayal Upadhyaya, has evolved into an important ideological foundation in Indian politics. In contemporary Indian politics—particularly in the context of the government led by Narendra Modi—several elements of this ideology can be observed directly or indirectly in policies and developmental approaches. A central principle of Integral Humanism is that the process of development must consider every individual in society, especially those standing at the last rung of the social hierarchy (Upadhyaya, 1965).

In the present governance framework, considerable emphasis has been placed on inclusive development, social welfare, and the concept of Antyodaya (upliftment of the poorest), which is often considered inspired by Upadhyaya's ideas. Numerous welfare schemes initiated by the government aim to deliver state services and resources to the poor, marginalized, and rural populations. This policy orientation seeks to connect development not merely with economic growth but also with social justice and the overall improvement of living standards (Andersen & Damle, 2019).

Furthermore, emphasis has been placed on self-reliance, utilization of local resources, and **the** preservation of cultural values in governance. This perspective aligns with the idea that national progress can only be achieved by maintaining a balance between economic development and the cultural identity and social structure of the nation. In this regard, policies related to self-reliance, rural development, and social participation can be associated with the principles of Integral Humanism.

However, it must also be acknowledged that contemporary political and economic conditions differ significantly from those of Upadhyaya's time. Consequently, the practical application of his ideas often appears in modified forms. Nevertheless, at the ideological level, Integral Humanism continues to serve as an important source of inspiration in Indian political discourse, and its influence can be observed in several policy priorities of the present government.

Thus, it can be concluded that the ideas of Deendayal Upadhyaya exert a significant ideological influence on contemporary Indian politics—particularly in the developmental vision and welfare policies of the Modi government—although their practical implementation has evolved in accordance with changing circumstances.

Analysis of the Use of Upadhyaya's Ideas by Various Political Parties

The ideas of Deendayal Upadhyaya—especially Integral Humanism—have emerged as an important ideological foundation in Indian political discourse. Fundamentally, these ideas are rooted in Indian cultural values, social harmony, and a human-centered model of development. Over time, different political parties have attempted to interpret and utilize

these ideas according to their respective political perspectives and policy priorities.

Some political parties have linked Upadhyaya's ideas with the concepts of inclusive development, social justice, and Antyodaya. Within this framework, state policies are designed to ensure that the benefits of development reach the weaker and marginalized sections of society. As a result, various welfare and public-interest programs have been emphasized to reduce social inequalities and expand economic opportunities.

On the other hand, certain parties and ideological groups have placed greater emphasis on the cultural and nationalist interpretations of his thought. In this context, efforts have been made to promote a political perspective rooted in Indian tradition, cultural identity, and national unity. Consequently, Upadhyaya's ideas have become part of a broader ideological debate extending beyond economic or social policy.

However, the application of his ideas by different political parties also reveals interpretative differences and practical limitations. In some instances, the use of his principles appears more symbolic or partial, while the full implementation of his core philosophical elements—such as balanced development, ethical politics, and social harmony—remains challenging.

Overall, it can be stated that Upadhyaya's ideas have generated an important ideological discourse in Indian politics. Their diverse applications by various political parties have influenced policy directions and brought greater attention to the role of cultural values and human-centered development within Indian political thought.

Conclusion Based on the Research Problem

The central problem of this study is that although the ideas of Deendayal Upadhyaya hold an important place in Indian political thought, it remains unclear to what extent his principles are effective in addressing the complex challenges of contemporary India.

Therefore, this research attempts to examine whether cultural nationalism and Integral Humanism, as articulated by Upadhyaya, can provide relevant and useful solutions to the social, economic, and political challenges of present-day India. The study reveals that these concepts represent ideological paradigms rooted in the Indian philosophical tradition that seek to establish balanced and harmonious relationships among the individual, society, and the nation.

In contemporary India, issues such as social inequality, economic disparity, questions of cultural identity, and concerns regarding political morality necessitate a re-evaluation of these principles. The concept of cultural nationalism is based on the belief that the true strength of a nation lies in its cultural heritage, social unity, and shared values. In an era characterized by globalization and rapid social change, this perspective can contribute to strengthening national unity and cultural self-awareness.

Similarly, Integral Humanism emphasizes that development should not be confined solely to economic growth but should focus on the holistic development of the human being, including physical, mental, intellectual, and spiritual dimensions. In addressing contemporary challenges such as economic inequality, rural-urban disparities, and imbalanced development, this philosophy provides an important ideological foundation for an inclusive and human-centered development model.

However, it must also be acknowledged that the direct application of these principles in the modern democratic and global context is not always straightforward. Their effective implementation requires reinterpretation and adaptation in accordance with changing socio-economic conditions.

Thus, it can be concluded that the principles of cultural nationalism and Integral Humanism articulated by Deendayal Upadhyaya can provide an important ideological framework for understanding and addressing the social, economic, and political challenges of contemporary India. Nevertheless, their effective implementation requires contextual

interpretation and policy adaptation suited to present-day realities.

Major Principles of Integral Humanism Propounded by Deendayal Upadhyaya

The philosophy of Integral Humanism, propounded by Deendayal Upadhyaya, represents a comprehensive philosophical and socio-political framework rooted in the Indian intellectual tradition. Its primary objective is to understand human life, society, and national development in a balanced and integrated manner and to guide them in accordance with Indian cultural values (Upadhyaya, 1965). Several fundamental principles are central to this philosophy.

First, Integral Humanism is based on the concept of holistic human development. According to this view, human beings are not limited to material needs alone; rather, the balanced development of the body, mind, intellect, and soul is essential for the fulfillment of human life (Upadhyaya, 1965).

Second, this philosophy perceives society as a living and organic entity, in which individuals and society are interdependent and should exist in mutual harmony. Within this perspective, social harmony and cooperation are considered essential elements for maintaining social stability and collective progress (Thengadi, 2008).

Third, Integral Humanism advocates a dharma-based social order, where the concept of *dharma* does not refer to a particular religious sect but to an ethical and duty-oriented system that ensures justice, balance, and moral order within society (Upadhyaya, 1965).

Fourth, the doctrine emphasizes a decentralized and self-reliant economic system. According to Upadhyaya, the goal of economic development should not be confined to increasing production and consumption; rather, it should ensure the welfare of all sections of society and provide equal opportunities for development.

Finally, Integral Humanism recognizes cultural values and national unity as the foundation of national development. It envisions a model of development that is human-centered, inclusive, and balanced, while taking into account Indian traditions, ethical values, and social equilibrium.

Thus, the key principles of Integral Humanism—holistic human development, social harmony, ethical governance, and balanced economic organization—offer an important ideological framework for the long-term and integrated development of Indian society and the nation.

Comparison of Upadhyaya's Concept of Cultural Nationalism with Indian Nationalism

This study indicates that the concept of cultural nationalism articulated by Deendayal Upadhyaya represents a distinct dimension within the broader framework of Indian nationalism. While Indian nationalism is often understood in terms of historical, political, and territorial unity, Upadhyaya emphasized that the true identity of a nation lies in its culture, traditions, values, and collective consciousness (Upadhyaya, 2002).

The concept of cultural nationalism argues that the enduring unity of a nation cannot be sustained solely by political institutions or state structures. Rather, it emerges from the shared cultural heritage and social consciousness that bind people together. In this perspective, a nation is not merely a geographical territory or administrative entity but a civilizational and cultural community**.**

In contrast, a major dimension of modern Indian nationalism developed during the struggle against colonial rule and the freedom movement. In that context, national unity was largely defined by political independence, democratic institutions, and constitutional governance (Andersen & Damle, 2019).

Upadhyaya's concept of cultural nationalism extends beyond this political interpretation. It emphasizes that the stability and progress of a nation depend upon cultural continuity, moral values, and social harmony. According to this view, national development becomes more stable and sustainable when it remains connected to cultural identity and tradition.

Thus, while Indian nationalism historically emerged through political and historical experiences, Upadhyaya's cultural nationalism places culture and civilizational values at the center of national identity**,** viewing the nation not merely as a political state but as a broader cultural and social consciousness.

Social and Political Thought of Upadhyaya: Relevance to Contemporary Problems of Indian Society

The social and political ideas of Deendayal Upadhyaya present an integrated approach grounded in the structure of Indian society, cultural traditions, and moral values. His philosophy of Integral Humanism emphasizes a balanced relationship between the individual, society, and the nation and views development not only in economic terms but also through human and social dimensions (Upadhyaya, 1965).

At the social level, Upadhyaya envisioned a society based on social harmony, mutual cooperation, and ethical values**.** In contemporary India, where issues such as caste divisions, social inequalities, and communal tensions persist, this perspective can contribute to fostering dialogue, cooperation, and balance among different social groups.

From a political perspective, he emphasized ethical politics, welfare-oriented governance, and decentralization**.** According to him, the purpose of governance should not merely be the exercise of power but the delivery of development benefits to the last individual in society. Policies inspired by this approach can encourage accountability, transparency, and public participation in governance.

Economically, his ideas stress self-reliance, the use of local resources, and balanced development**.** This approach can offer guidance for rural development, employment generation, and the reduction of economic disparities.

Therefore, Upadhyaya's social and political thought provides a balanced, human-centered, and value-oriented framework for understanding and addressing the complex problems of Indian society. Although changing socio-economic conditions may pose certain limitations in the practical application of these ideas, his philosophy remains an important intellectual guide for inclusive and balanced development.

Reflection and Relevance of Upadhyaya's Ideas in Contemporary Indian Politics and Policies

The ideas of Deendayal Upadhyaya, particularly Integral Humanism and cultural nationalism, continue to serve as important ideological references in contemporary Indian political discourse. An analysis of current political policies indicates that several principles associated with his philosophy are reflected—directly or indirectly—in policy formulation and development strategies, although their form has evolved over time.

A key principle of Integral Humanism is inclusive and human-centered development. Contemporary policies aimed at extending development benefits to marginalized communities, strengthening social security, and improving living standards partially reflect this perspective.

Additionally, policies emphasizing rural development, local resource utilization, and self-reliance demonstrate certain elements of Upadhyaya's economic thinking.

From a political standpoint, Upadhyaya emphasized ethical governance, social harmony, and decentralization. Current discussions surrounding good governance, transparency, and public participation show some alignment with these principles. Furthermore, debates regarding national identity and cultural values also reflect elements of his concept of cultural nationalism.

However, the contemporary policy framework is influenced by multiple ideological and practical factors. Consequently, the direct and comprehensive application of Upadhyaya's ideas is not always evident. Often, his principles function more as sources of inspiration, while their implementation in policy-making takes modified forms according to contemporary circumstances.

Practical Application of Upadhyaya's Ideas in Contemporary India: Possibilities and Effectiveness.

This study indicates that the philosophy of Integral Humanism developed by Deendayal Upadhyaya provides a comprehensive philosophical framework for establishing balanced relationships among individuals, society, and the nation. It advocates balanced development based on the four dimensions of human life—body, mind, intellect, and soul—as well as the four Purusharthas: Dharma, Artha, Kama, and Moksha (Upadhyaya, 1965).

In the context of contemporary India—characterized by globalization, digital transformation, economic inequality, environmental challenges, social fragmentation, and technological dependency—the practical application of his ideas appears both possible and, in certain sectors, increasingly effective.

Policies emphasizing Antyodaya (upliftment of the last person), self-reliance, local production, decentralization, and social harmony reflect elements consistent with this philosophical framework. Such initiatives aim to promote inclusive development, strengthen cultural confidence, and reduce socio-economic disparities.

However, the complete and pure implementation of these principles faces several challenges. Global economic interdependence, technological transformations, environmental crises, and geopolitical conflicts create complex policy constraints. Consequently, the practical application of Integral Humanism requires adaptation and reinterpretation within contemporary socio-economic contexts.

Nevertheless, the philosophy continues to offer a human-centered alternative to dominant Western models of development**,** particularly in addressing issues such as inequality, environmental degradation, and moral decline in public life.

In conclusion, the ideas of Deendayal Upadhyaya—especially Integral Humanism and cultural nationalism—remain relevant in contemporary India. Their practical application is possible and, in certain policy areas, already visible. When interpreted and adapted according to modern circumstances, these ideas provide an intellectual foundation for inclusive, balanced, and value-based development**.**

Although their ideal and complete implementation may be difficult, even partial and contextual application can contribute significantly to the holistic welfare of Indian society. Thus, Integral Humanism continues to serve not only as a philosophical doctrine but also as a meaningful guide for future policy formulation and national development.

Practical Application of Deendayal Upadhyaya's Ideas in Contemporary India: Possibilities, Effectiveness, and Brief

i. The social, political, and economic ideas of Deendayal Upadhyaya are rooted in the Indian cultural tradition and a human-centered development perspective. The philosophy of Integral Humanism propounded by him seeks to establish a balanced relationship among the individual, society, and the nation. In the context of contemporary India's social, economic, and political conditions, an important question arises as to whether his ideas can be practically implemented and remain effective in the present era (Upadhyaya, 1965).

ii. From a contemporary perspective, several elements of his thought,such as inclusive development, social harmony, self-reliance, and decentralization,continue to appear relevant in policy-making and developmental debates. Policies emphasizing rural development, the utilization of local resources, and the upliftment of marginalized communities suggest that his principles can still provide meaningful guidance in contemporary circumstances.

iii. Furthermore, the emphasis placed by Integral Humanism on the holistic development of human beings can help in understanding and addressing the

limitations of modern development models. This perspective attaches importance not only to economic progress but also to social justice, moral values, and cultural balance, which are extremely significant in today's complex socio-political environment (Thengadi, 2008).

iv. However, due to globalization, technological transformations, and complex economic structures, the direct and complete implementation of his ideas may be challenging. Therefore, contextual reinterpretation and policy adaptation of his principles are necessary in accordance with contemporary circumstances.

v. Thus, it can be concluded that the practical application of Upadhyaya's ideas in contemporary India is possible, provided they are reinterpreted and adapted to present socio-economic needs. Under such conditions, his philosophy can offer an effective intellectual foundation for balanced, inclusive, and human-centered development.

Integral Humanism as an Alternative Development Model

The philosophy of Integral Humanism proposed by Deendayal Upadhyaya presents an alternative development model for the holistic advancement of Indian society, while his concept of cultural nationalism provides an important basis for understanding Indian national identity.

The analysis of the study indicates that Integral Humanism is not limited to economic development alone; rather, it proposes a comprehensive framework for the balanced and coordinated development of the individual, society, and the nation. This philosophy gives equal importance to the material, moral, cultural, and spiritual dimensions of human life (Upadhyaya, 1965).

Moreover, his concept of cultural nationalism asserts that the true identity of a nation lies in its cultural traditions, value systems, and collective social consciousness. The findings of the study demonstrate that this perspective offers a significant ideological foundation for an alternative development model that takes into account the historical and cultural characteristics of Indian society.

Thus, the hypothesis that Integral Humanism provides an alternative model for the holistic development of Indian society and that cultural nationalism offers a basis for understanding national identity is substantially supported.

Relevance of Upadhyaya's Ideas for Addressing Contemporary Problems in India

The analysis of various chapters in this study reveals that the social, political, and economic ideas of Deendayal Upadhyaya provide valuable intellectual guidance for understanding and addressing several contemporary challenges in India, such as:

- Social inequality
- Imbalanced development
- Decline of ethical values
- Issues related to cultural identity

His ideas are grounded in principles such as social harmony, inclusive development, self-reliance, and ethical politics, which continue to remain relevant in the evolving socio-political context of India. Although their practical implementation requires appropriate policy adaptations, the findings of this study suggest that his ideas provide a useful conceptual framework for addressing contemporary social challenges.

Hence, this hypothesis is also adequately supported.

Overall Conclusion of the Study

The present study examines the philosophy of Integral Humanism and the broader social, political, and cultural thought of Deendayal Upadhyaya within the context of contemporary India. The analysis demonstrates that Upadhyaya's ideas constitute a significant contribution to Indian political philosophy, as they attempt to synthesize traditional Indian cultural values with the requirements of modern

socio-economic development. His doctrine of Integral Humanism provides a holistic framework that emphasizes the balanced development of the individual, society, and nation by integrating the physical, mental, intellectual, and spiritual dimensions of human life.

A central finding of this study is that Integral Humanism offers an alternative developmental paradigm rooted in Indian philosophical traditions. Unlike Western ideological models such as capitalism and socialism, which often prioritize economic growth or class structures, Upadhyaya's philosophy stresses the importance of human welfare, ethical values, and social harmony. By incorporating the concept of the four *Purusharthas*—Dharma, Artha, Kama, and Moksha—his thought seeks to ensure that economic progress is guided by moral responsibility and cultural balance. In this sense, Integral Humanism proposes a human-centered and culturally grounded model of development.

The study also reveals that Upadhyaya's concept of cultural nationalism provides a distinctive interpretation of national identity. According to him, a nation is not merely defined by political boundaries or administrative institutions but by a shared cultural heritage, collective values, and a common social consciousness. This perspective highlights the importance of cultural continuity and social unity in strengthening national development and political stability.

Furthermore, the analysis indicates that many principles associated with Upadhyaya's philosophy such as inclusive development, social harmony, decentralization, and self-reliancecontinue to resonate in contemporary Indian political discourse and policy frameworks. These ideas are particularly relevant in addressing challenges such as social inequality, developmental imbalances, cultural fragmentation, and the decline of ethical values in public life. Although the direct and complete application of his ideas may be difficult in the context of globalization, technological change, and complex economic systems, their conceptual relevance remains significant.

The study therefore concludes that Integral Humanism and cultural nationalism together provide an important intellectual framework for understanding the socio-political realities of India. While their practical implementation requires reinterpretation and adaptation in accordance with changing circumstances, the core principles of Upadhyaya's philosophyhuman-centered development, ethical governance, and social harmony continue to offer valuable guidance for policy formulation and national development.

In sum, the thought of Deendayal Upadhyaya represents a meaningful attempt to bridge traditional Indian philosophical wisdom with modern developmental needs. His philosophy remains relevant not only as an academic discourse within Indian political thought but also as a potential guide for building a balanced, inclusive, and value-based model of development in contemporary India.

References

1. Andersen, W. K., & Damle, S. D. (2019). *The RSS: A view to the inside*. Penguin Random House India.
2. Kulkarni, S. (2017). *Pandit Deendayal Upadhyaya: Ideology and perception*. Prabhat Prakashan.
3. Thengadi, D. B. (2008). *Integral humanism: An analysis*. Suruchi Prakashan.
4. Upadhyaya, D. (1965). *Integral humanism*. Bharatiya Jana Sangh.
5. Upadhyaya, D. (2002). *Political diary*. Suruchi Prakashan.

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CONNECTIONS OF SCIENCE AND EDUCATION IN ANCIENT GRECO-ROMAN SOCIETY

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Abstract:

This is a pro-science and pro-education society that we live in. Both science and education are regarded as the answer to every question and the foremost 'banking systems' to invest in. It feels intriguing to trace the nexuses between science and education. Unfortunately, despite being intimately connected, history of science and history of education are studied separately as everything else following the modern trend of a specialised world. It should be a generalist, holistic approach towards studying history of knowledge or history of consciousness, instead. Moreover, knowledge transmission is given all attention, while, the process of knowledge formation and the ubiquitous roles of non-knowledge transmitters are neglected. An enterprise, hence, is undertaken to critically analyse the ancient society of the later Greco-Roman empire, that is, the antique society which along with its preceding counterpart, the Grecian, is considered as the cradle of the modern western culture, regarding the interconnections of contemporaneous science and education temporally ranging from 200 AD to 600 AD. The objectives of the study are to state and discuss the statures of science and education in ancient Greco-Roman society temporally ranging from 200 AD to 600 AD. And, then, it is to investigate the ancient Greco-Rome regarding the interconnections of contemporaneous science and education within a delimited timeline between 200 AD and 600 AD. Methodology-wise, this study is largely qualitative. It is historical in nature and carried out in a comparative manner. The whole research report, that is, the paper, is regimented into few sections objective-wise. It can be concluded by saying that in terms of popularity education was way ahead of science. In Greco-Rome, on the one hand, science was mercilessly persecuted by the state-religion, Christianity, to be precise. And, on the other, the imperial paramountcy supported general public secular education in various ways to its own advantage. Also, in there, practice of science had immanent marginalised streak. It was looked down upon by education by and large and curricular inclusion of science was, to the max, peripheral or ornamental, if any. Besides, in archaic Greco-Rome, science and education shared a peculiar connection of co-dependency in which education enjoyed an upperhand which scenario is the polar opposite to their modern parallel.

Keywords: Science, Education, Greco-Roman Society, Antiquity, Co-dependency

Introduction:

History has a strange habit of repeating itself - here lies the significance of historical study and history. In spite of being intimately connected, especially, now, history of science and history of education are taught separately - whence the approach should be holistic in terms of the history of consciousness or knowledge. Plus, the transmission and transcription (banking of knowledge) of knowledge get the sole attention, whereas, the formation of knowledge is neglected. What would be better than to retrospect the formation of knowledge in a chunk sample of antiquity when knowledge just started to be consolidated? After all, the present reflects the past.

We practically live in a pro-science society where education is regarded as a panacea that promises all and fails to fulfil most often. It is

extremely intriguing for me to dissect the ancient embryos of science and education on the societal slide of ancient Greco-Rome - the progenitor of modern western culture. And, this I propose or offer as my research rationale for this paper. This study aims to analyse ancient Greco-Roman society regarding the interconnections of contemporaneous science and education. The study is significant because, firstly, history is a 3-in-1 tool - a storyteller for relaying past, interpreter of present and forecaster of future. Secondly, because of the research rationale of which I had discursively mentioned before.

Discourse of Definitions:

Here, the functional definition of science is that it is a sapiens endeavour by which natural, that is, physical, chemical, biological, geological etc., phenomena, processes, objects or effects are investigated, generalised, modelled or replicated by the method of verification and/or, its flip-side, falsification as the criterion of truth in terms of elements, factors, causes, principals, theories or laws under a blanketing consensual view known as paradigm to conformingly carry out such activities.

And, education is post-conception installation of knowledge or information by instructions through multifarious modalities, that is, the process of 'nurture'. Especially, modern conscience suggests that education has unequivocally been both a means and an end being enjoined by the ruling regime to select favourable set of ideas, beliefs, myths, concepts and knowledge from the available tangible and intangible cultural resources to infiltrate the young minds with so that the present hegemony be perpetuated advantaging the small-scale, closely-cloistered class in power.

Delimitations:

This study involves delimitations of three types of domains - time, space and attribution.

Temporal Delimitation:

The delimited temporal window has been scaled to be 200 AD to 600 AD, a span of four centuries of the antiquity. Strange, curious time it was; rapidly changing, crumbling down and heading towards the 'slumber' of the Middle Ages. The Roman Empire was facing an economic crisis as result of draining down of expensive numismatic metals due to centuries long maritime commerce with the Far East in exchange of exotic nature derived luxurious items. Political unrest was another headache for the emperors who were frequently assassinated, forced to commit suicide or abdicate and lived under the threats of external, 'barbaric' tribal invasions or incessant animosity with archenemies like the neighbouring *Sasanian*s and internal conspiracies committed by the trusted, close ones even. On the theological front, once Christianity officially received the status of state religion and imperial patronage in 380 AD, a methodical, merciless persecution of paganism and pagan culture was orchestrated. Naturally, the pagan intellectuals and their cerebral heritage perished, fled and took refuge in dormant forms, holding their heads low, in socio-political pockets inside and outside the Empire. The legendary Grecian cerebral lineage was gasping for its last breath, ready to go into hibernation only to be resurrected by the Arabic revival.

Spatial Delimitation:

Speaking of the geographical ambit or spatial premise, I took the territorial stretch (whatever heterogeneous they may be) of the Greco-Roman empire temporally spanning between 200 AD and 600 AD under consideration. The imperial Rome had an enormous territory stretching from England in the north-west to the border of Iran in the south-east and from the European lowlands in the north-east to Egypt in the south-west.

Attributional Delimitation:

The science attribution has been delimited to medicine (for its existential essentiality), chemistry (for its omnipresence) and astronomy (for its antique roots in both reverence and fear). Therefore, involving one society and four attributes (medicine, chemistry and astronomy as science delimitation and education), it is basically a 4 fold study.

Literature Survey:

Literature survey serves as an indisputably indispensable guide to detect the research richness as well as research lacuna or knowledge gap in one's micro area of research. In here, I reviewed quite a significant number books divided in 3 categories - on cultural aspects other than science and education, on science and on education. A total of 88 books have been thoroughly read, though, the survey was not limited to these.

A terribly felt limitation of the study is language barrier. Both Greece and Italy have nationally supervised Doctoral theses repository equivalent to Indian portal Shodhganga. But, all of them are in either Greek or Italian, none of which I can claim to know. Moreover, I have not come across a single Indian Doctoral thesis solely dedicated to antique Greco-Rome. So, I had to resort only to related books written in English language on which I have workable command, if I may say so. The books can be further divided into 2 classes depending on their respective writers' domiciles - written by author(s) of non-Indian descent, and of Indian descent.

Research Methodology:

The methodology of this research is largely qualitative (because the data used are mainly of qualitative type). Its nature is of a historical study (because the study is set in a temporal ambit stretching from 200 AD to 600 AD) conducted in a comparative manner (since a comparison is made between science and education to trace their nexuses in ancient Greco-Rome).

The types of sources materials or data are of 3 - primary, secondary and tertiary. I remained quite cautious about the external and internal criticisms of the collected data throughout and nothing outstanding has been held against.

Science in Ancient Greco-Roman Society:

Evidently, the first scientific streak was introduced to the west by the *Ionia*n school of natural philosophy devoid of divinity. The major names of the first natural philosophers in the history of western thought are *Thales, Anaximander, Anaximenes* and *Heraclitus*. Their life and works contributed to the first secular sense of science free from superstitions. Coming to the medical thoughts and activities, Greek cultic and secular medicine were transplanted in elaboration into Roman soil and carried on in Roman toga. The exceptionally odd dynamics of medicine and slaves or former slaves of Greek descent shows how the conquered culture medically conquered the conqueror. The most majestic example of this Greek lineage were *Galen* and *Galen*ic medicine some traits of whose heritage lingered on in the modern medical mind till around 19th to 20th century AD. Again, Christianity laid its hand on medical sphere. The church built numerous medical social service houses of different kinds and made medicine individualistic or familial to indiscriminatingly public to a great extent through social welfare. Medicine stretched its helping hand towards militia and the famous Roman army took its full advantage in terms of local battlefield attached medical camp, medicinal resources, fortified respite for treatment and recuperation etc.Ancient Greeks like *Empedocles* and *Democritus* are considered the first atomists of western history of thought as they proposed the concept of 'atoms' and 'voidness'. *Aristotle* was to suggest the foundation of the longstanding humoral theory, that is, immanent properties of substances or materials or 'elements'. Later, *Phyrro*nist *Lucretius* revived the 'atomic' theory to not much contemporaneous avail.

The Egyptian *khemeia* relayed the baton to Greek alchemy. The priests, astrologers and alchemists comprised a feared unit who were supposed to make gold, predict future and create panacea. They also tied the microcosm with macrocosm by equating known metals and skylets. With the winds changing shift, alchemists had to maintain an obscured to low-key profile. Their practices also hid behind the symbolic literary mystification. In the 4th century AD another blow was received in the form of emperor *Diocletian*'s edit ordering burning of all accessible or available alchemical texts.

The Roman *khemeia* did not add anything new to alchemy apart from some individualistic effort to accumulation of alchemical knowledge and texts, and multiplication in terms of newer copies and commentaries. Alchemy then waited patiently in a dormant state for the medieval Arabic revival.

People had always been intrigued by the skylets and the endless vestibule. The Greeks are not exceptions. In fact, they had their share of sky-gazers, *Heraclides*, *Apollonius*, *Hipparchus* and others all of whom favoured a geo-centrism except for the solo propounder of helio-centrism, *Aristarchus*.

The blue-eyed boy of Roman astronomy was *Ptolemy* (of *Macedonia*n descent and Greek heritage) who revamped the *Apollonia*n-*Hipparch*an model through his famous treatise, *Almagest*, whose concepts of helio-centrism, infinity of universe and circular orbit kept perpetuated until the times of *Copernicus*, *Tycho Brahe* and *Kepler*, respectively. One of his remarkable contributions is his *Table of Chords* that is considered equivalent to the modern table of sine.

Science in ancient Greco-Roman society is to be summarised as follows.

I. Greek science was the lending ancestor of Roman science.
II. The school of *Ionia* was the dawn of Greek rationalism, or natural philosophy, to be particular.
III. Both the Greek sacred and secular medicines were transplanted in Roman soil from Greece as a result of both organic and institutional entrepreneurship.
IV. *Galen* of *Pergamum* created a steady monolith of his medicine that remained largely unwavered until the 18th century AD.
V. Two of the major *Galen*ic medical notions were the humoral theory and the blood circulation theory for sapiens.
VI. Christianity utilised medical services as social connection with the public life and health.
VII. The massive Roman army too was benefitted by medical advancements in anatomy, surgery and medicine.
VIII. The Greeks produced the first 'atomist's in the history of western thought.
IX. *Khemeia* was the immediate ancestor of Roman alchemy.
X. Roman alchemy was concerned for three things: making gold, creating panacea and interpreting the universe by predicting future.
XI. Roman astronomy guised in the garb of determinism of astrology.
XII. *Ptolemy* was synonymous to Roman astronomy whose theories of geo-centrism, infinite universe and circular orbits were debunked only in the times of Copernicus, Tycho Brahe and Kepler.
XIII. The state had never been very sympathetic to science and science practitioners, in general.
XIV. With the rise of Christianity, the new religion proved to be so intolerant towards rational thinking that some factions of science had to hide underground like alchemy etc. Medicine and astronomy somehow managed to survive overtly to an extent.

Education in Ancient Greco-Roman Society:

The sixth chapter is on education in ancient Greco-Roman society. The Romans borrowed much from Greek education like everything else. Greek education could be divided into *trivium* and *quadrivium* horizontally as discussed before more than once, whereas, longitudinally it was divided into primary, secondary and tertiary. So was the Roman.

The Roman primary schools came into existence around the 6th century BC. Boys, and some girls, of about 4 went to *ludus litterarius* run by *magister literaii* to learn reading and writing alphabet and numerals. The Roman children were introduced to Latin first, then, Greek, through *hermeneumeta pseudodositheana*. If there was familial means to afford, slave *pedagogue*s were appointed to extraneously supervise the children's progress.

From about the age of 7 to 14, the prepubescent boys (mostly) went to secondary grammar

schools or *Grammaticus latinus* or *Grammaticus graecus* under grammar teacher or *grammatici*. There they learned grammar, mythology, literature, local history and geography, and logic as a primer of rhetoric to be learned in the tertiary level or standard.

Around 14 to 16 years of age, it was time for the adolescent boys to go for tertiary education equivalent to rhetoric if they could afford it. There they learned the prestigious art of oratory and rhetoric under the guidance of a *rhetor latinus* or *rhetor greacus*. Precept, imitation, composition exercises, *declamatio* or *melete* and sequence - these 5 were the stages of learning a piece of oration on a particular theme. *Aristotle* proposed 3 desired attributes of good oration - *ethos*, *logos* and *pathos*. Rhetoric had mainly 3 types - deliberative, judicial and epideictic.

Apart from this proto-system of general public education, there were provisions of several other courses offered as higher studies few of which became populist - Roman law, shorthand, medicine, astronomy etc.

The imperial state realised that general public education would be beneficial for the smooth running of state machinery. This is why the supported and patronised education by providing fellowships to students, promulgating royal edicts ensuring teachers' remuneration, rendering places for teaching-learning and kind.

Education in ancient Greco-Roman society is to be summarised as follows.

I. Roman education can be said as an implant of Greek education in Roman soil.
II. Roman education was obviously bilingual - for the Greek speakers of eastern empire learning Latin was advantageous, whereas, learning Greek was advantageous for the Latin-blooded westerners.
III. Roman education adopted the Greek latitudinal curricular division of *trivium* and *quadrivium*.

After Christianity became the emperor's religion, it, in favour of theological indoctrination, thoroughly destroyed whatever progress had been there in the general public secular educational front.

The Romans were no less misogynistic than people are today. Educational participation in any form for women depended on determinants like familial resources and support, individual inquisitiveness and enterprise, situational demand, absence of leading male figure etc.

Greco-Roman educational assessment was equivalent to exhibitionism. Teachers did not have much choice than succumb to popular public demand. After all, all the government job aspirants needed to know to give orders to their subordinates.

The Romans thought of children as small-sized adults with no special psychological or pedagogical needs. Rote learning was the rule. Corporal punishment was a regular. There were some attempts to treat children as children in the educational precincts but those were much mocked by contemporaries.

Latinisation was never forced. For the Greek-speakers of the eastern empire, learning Latin was monetarily advantageous and Greek was culturally advantageous for the western empire Latin-speakers. Over all, people trusted education promising a secured and safer future, but, got disappointed much frequently.

IV. Longitudinally, Roman education was divided primary, secondary and tertiary stages, respectively.
V. At primary level, reading, writing and arithmetic were taught.
VI. At secondary level, grammar, literature, mythology and some introductory geometry and logic were taught.
VII. At tertiary level, the mainstream was rhetoric and oratory.
VIII. If opted for, tertiary level students could instead go for medicine, astronomy, law, shorthand etc.
IX. In the patriarchal Greco-Roman society, women's educational participation depended on individual enterprise, family support,

unavailability of leading male figure, demanding situation etc.

X. They thought of the children as small-sized adults with no special age-specific educational psychological needs. Corporal punishment was a regular.

XI. The state knew that general public education was important for running their bureaucracy and so it backed education in terms of fellowship, fixing teacher's remuneration, rendering place for teaching-learning etc.

XII. With relaying of baton of state religion from paganism to Christianity, the latter wrecked wanton havoc on education and abolished whatever secular there was reducing it to mere reading and rote learning of religious dogmas.

Connections of Science and Education in Ancient Greco-Roman Society (200 AD - 600 AD):

We are, right now, living in the Holocene period, characterised by its exasperating, and soon to be collapsing, warmth following a comparatively colder period, of earth's geologic chronology as officiated by the International Commission on Stratigraphy (ICS). Despite, the Commission has not yet officially validated, but, is collecting data about and sincerely considering accepting it; a word has been dragged around amidst the academic discourse very lately - Anthropocene - denoting that the current periodic geology and ecology are being regulated by the sapiens affairs as the key factor. However, there has been discontent expressed from within the academia by many academicians against the term as they do not think and believe that each and every member of the species is equally responsible for this disastrous phenomenon and, hence, disqualify the term in favour of another, Capitalocene, which has been doing the rounds since about the 1990's. The team-Capitalocene, which seems to be more rational speaking strictly for me, rationalises that it is no more mere a natural ecology we are talking about or dealing with, but, instead, a global economic ecology created by capitalism is now dictating everything under the sun, both the bio and non-bio spheres, having had the most recent boosting up during the introduction of neo-liberalist policies under the Ronald Reagan presidential in USA that waded through the open globe-market presto. Paradoxically, the more the social constructs and sapiens endeavours have become seemingly separate and institutionalised, the more their fates have become co-dependent and tangled - so much so inescapably that the counter measures advised to tackle a catastrophic future that is becoming more and more evidently visible are also giving stress on holistic well-being to rescue and free ecology from the economic capitalist clamp. As for an example, Donna Haraway, one of the few individuals who singlehandedly pioneered the academic movement for wholesome study of history and philosophy of knowledge, instead of the regular practice of disciplinary distinction, and long-overdue and valid incorporation of historically criminally ignored history of gender, is inspired by the grand creature-ish being Cthulhu from Lovecraftian dystopia 'The Call of Cthulhu'. She is hopeful of swerving off our self-dug grave by taking the road to Chthulucene (her own optimistic interpretation of the extraterrestrially horrific world of the Cthulhu Mythos spiralled out of various stories and novellas by H. P. Lovecraft), an utopian world ecosystem consisting of all living species and non-living things bonded as a singular kin entitled to equal priority and privilege.

Now, how does this culture of co-dependence work for science and education? There indeed is a well-established, if not declaratively defined, status quo - synonymous to and omnipresent in capitalism - which is the essence of their interconnections and conscientiously maintained. These two institutions - science as in advanced study and practice of sciences mainly relating to the research realm and education as in formal system of socially shaped and promoted sets of information - fundamentally share a one-way relationship of demand and supply, not the other way round, in the occupational sense of science and technology creating new placement prospects to meet the ends of which society arranges and sponsors a limited scope internship programmes in the name of education. It is kind

of a provider-provided hierarchical relationship of epistemological exclusiveness via the essential condition of available jobs as an intervening variable as is just discussed how the androcentric philosophy of men of science to megalomaniacally subdue nature and satisfy their male ego prompted them to indifferently unveil, unclothe and dissect nature of 'her' 'mysteries', and the others, inadvertently making newer, bigger job markets which in turn catalysed bifurcation and expansion of university departments of, initially, science and technology in Europe.

The other half, and, perhaps, the more vital, of maintaining this status quo of vested interest is, of course, political. Science like almost every other institution utilises, and exploits, education for its appropriation. The 'science community' - as is often parochially called as if all the scientists or science practitioners of respective branches of science worldwide agreeably share definite and same upbringing, social background, language, ego, values, interests, sentiments and we-feelings - is the beholder of the receptacle of 'scientific' knowledge and information attached with an optionally impervious stopcock which they, along with other decision-makers as the governmental and corporate sectors - the latter with the most say as the capitalist funders, regulate the release of these information, ideas and concepts to popularise through education as they please in terms of which, how, when, to whom and how much. The scope, manner and quality of educational science training proves to be defining the career graph of a future science researcher, especially, in case of the modern lab-oriented experimental setting where a hypothesis is accepted or rejected on the basis of the interpretation of the average of the readings derived from test-replicas, as it indoctrinate the eyes that determine how one sees into things, reads and records the readings, and the mind and thoughts that determine what one thinks of things or thinks to think about or avoid or ignore and, therefore, how they interpret the recorded data and happenings. A curious case was the discovery of oxygen. It was English chemist Joseph Priestley who first (among who got the observations of their inquests along this line published to make their claims publicly recognised, of course) chemically isolated oxygen in laboratory, but, kept stubbornly refusing to believe in that himself, because, the heavy influence of the teaching of the idiosyncratic phlogistic convention of the time outweighed first-hand experience and reasoning based on that. Ironically, his better judgement was clouded by his training itself that was supposed to give him clarity of thought instead. Nevertheless, his younger contemporary French chemist Antoine Lavoisier somehow managed to be free of perceived ideas and owned up the reasoned fact that the gaseous substance he had successfully separated was indeed an element called oxygen ('distinct species' in his words actually). And, though, he was the second to separate oxygen from air, it is only for his logical defiance that he is given credit as the discoverer of oxygen. And, also for this fallacy of the deterministic transference and assimilation of 'concepts' from science to education, the discrepancy in training has serially backfired throughout the history of science.

Apart from paying heed to this basic existential needs of training young recruits for and perpetually supplying new blood to the body of advanced study and research of science, education also plays a populist role, again as it does for numerous other institutions, to sensationalise science among wider population and, especially, impressionable school students by conditioning them with wondrous and, alas, unwarranted stories, events and anecdotes incorporated into syllabi as parcels of mythology of science or science-lore. For instance, the electrifying *eureka* moment for the *Athen*ian era intellectual *Archimedes* of *Syracus* - however, evidence shows that the technique of measuring the density of a solid, asymmetric or amorphous object with the help of principle of buoyancy and, thus, verifying its purity had already been invented and in use way before his time. Another popular exhibitionist tale is taught how late-*Renaissance* Italian polymath *Galileo Galilei* exhibited two objects of different weights but made up of same material released from same height touch ground after same interval of time if fall unhindered from the top of the Inclined Tower of *Pisa*. But, the matter of fact is that he never went up that famous tower his entire life, although, he, indeed, conducted a similar test using an

inclined surface and documented in his writings a thought experiment analogising the real and the imagined models of the test. Yet another is the apocryphal apple associated with the discovery of gravity by British scientist *Isaac Newton*. The list is too long to continue with here. Whatsoever, the sensational exhibitionism of these easily stomachable little tales of the mythical history of science attract the attention of general public mind, they unfortunately compromise with authenticity, continuity, time and space reality, philosophy and, sometimes, even technicality of the true history of science, and often undermine the incontrovertible role of generational privilege and hard work to attain access and achieve success in the history and institution of science in favour of the myth of meritocracy.

Now comes the direct technical terms that bind science and education into yet another tie of co-dependence in which the former is once more the theoretician and sanctioner, whereas, to receive and apply whatever and however have been sanctioned, the latter joins the former's tail end. The simplest materialistic effect, which would suffice mentioning here, of technological advancement on education, is the classroom application of teaching aids and tools - corporeal and otherwise. History of education has seen a lengthy line of succession in use of props assisting teachers to elevate their lesson efficacy with the evolution in material culture - from the good old *ostracon* and reed-*stylus* to paper-printed book and mechanical pencil and pen, from precarious wall surface to magical digital board, from experimental teaching machine to applied programmed learning to open and distance learning made possible through high-end computer-assisted instruction, from humble chart, map, 3D model to sophisticated overhead projector and niche laboratory, from stuffy library to the surreal world of internet on which the entire informational treasure of our history is waiting just one click away from us to be retrieved when and where we choose to. On the other hand, science manoeuvres to ensure its preferred moral, gender and class colourings through selectively designed and targeted educational materials and programmes about 'safe' and 'scientific' handling of technological machineries, appliances, other innovations and the sundry intended for laboratory, factory, and even domestic, quotidian life.

Mostly, because of the nature of their interrelations and because knowledge has traditionally been equated with power in both occidental and oriental cultures; plus, information has already emerged as the 'post-modernist' new-currency that is even regarded to be potentially capable of instigating yet another world war if so is deliberated by the corporate tycoons; education is caught limping behind science. Only after a new paradigm has replaced the old one and been accepted, followed and supported by a considerable number of scientists, a toned down version of it gets funnelled to be assimilated by in the system of education in terms of textbooks, allied items and methodologies. This whole process of consolidation and internalisation demands time, gets regulated by the interplays among various different economic-politico-cultural determinants and reiterates cyclically. Henceforth, education tags along the footprints of science and gets patronised and used by the latter on its own terms. Science seems to be an elite-washed institution partly, and intentionally, aloof of the mundane society, while education happens to be its poor, neglected and half-forgotten distant x^{th} cousin removed y times, which lives off of the thrown leftovers of the former. This is also true to the status dynamics displayed within the modern university campuses. While, the science and technology departments of the modern universities universally enjoy 'aristocratic' status and are considered of utmost priority by the authorities, the education departments (or schools, as known in some places; 'education' is considered as a discipline and not a system in this particular point of argument), that are still quite new additions to the university administrations and arenas as compared to the science faculties, suffer impoverished infrastructure and are always kept at arm's length both geographically and politically.

Of this 'consecrated' image of science as an exclusive club situated on an ivory tower and joined by a quantity of intellectually superior men who seem to respond to a higher calling of life by devoting themselves to the service of science and are kind enough to dip their fingers

into their knowledge 'pensieve' (an allegory borrowed from J. K. Rowling's wizarding world wherein only the most powerful magic-folks own pensieve, a metallic or stony, shallow dish to contain complex enchantments for personal usage) and sprinkle a few droplets over the frugal folks on the occasions of social interactions time and again, the 'utopia' of *New Atlantis* authored by *Francis Bacon* is the manifesto of the time and is still relevant today, at least, metaphorically. This *Bacon*ian Euro-centric (as was everything else then) science fiction speaks of a mythical, recluse land of *Bensalem* of whose prosperity is the doings of the members of the *Salomon's House*, a state-funded college that matches the structure, functions and administration of modern universities and research institutes dedicated to theoretical and applied sciences. As the House Head states, the sole purpose of their life is to conquer, own and cut up the all-knowledgeable nature following 'scientific' methods, accumulate and record or document observations, analyse them and utilise the obtained wisdom for the future betterment of the greater society. The House members have to stick to strict duty-allotments and scrupulously observe a set of codes in terms of dress, behaviour, values etc. There is a certain and definite air of cultic mysticism and secrecy surrounding the House. The other regular inhabitants, who are benefitted by and indebted to the strenuous labour of the House members, have become so dignified and chaste as their overall welfare is secured that the whole land is devoid or free of immorality, dishonesty, obscenity and any other social foulness. Towards the end, the House Head altruistically permits a group of outsider 'guests' to publish the fruits of their works so that the common people of a larger population get enlightened and a new 'relationship' will be cemented between the House and the people. And, who does not know that science fictions can foresee future as well as mirror contemporary morals, or at least, the desired, if not escapist, ones for the author and the like-minded?

On the other side, it has been a totally different story for education, not as a system, but, rather, as a discipline. The traditional role of this discipline, if I may say so in a sense of backward extrapolation, had been production of future teachers who aspired to be so either by choice or compulsion of unavailability of any other choice till much later. There had been about 3 ways to become a teacher. One was the oldest model of favouritism, lineage and social connection - an experienced and influential teacher would select a handful of their favourite students to train for a term. The second was the residential schools for training theological teachers to be - these were more of authoritarian 'moral communities' than makers of teachers. And the reactionary third emerged latest as the day colleges pretty similar to the modern teacher training colleges - they were necessarily meant for people wanting a teaching career in liberal subjects. Until then the discipline remained completely isolated from the universities and, hence, research, that is, educational research as we know now. But, as a result of various forces (I will relieve myself from the unnecessary toil of discussing which as it is no appropriate place for such) these day colleges began to be slowly assumed by the direct administrative control of the existing universities. Soon after this taking over, the universities started to have their own education departments one by one. The 4 foundations of education were consolidated - philosophy, psychology, sociology and history - which are still in vogue. Increasing number of people pursued and was awarded their Doctoral degrees in education, the research in which field tended to be heavily psychologically inclined long after. But, then other educational aspects, such as, curriculum, management, technology, teacher education and, of course, the other 3 foundations, were being attempted by the research candidates. Even after, education as a discipline was perceived of inferior status and provided insufficiently; and this tradition continues to exist till now. This discipline underwent more or less same evolutionary course among the Anglophonic and other western countries outside of which it went down somewhat similar, yet, way more heterogeneous lanes.

But, this paper interests in education as a system, not a discipline. So, back to the concerning context; as just argued and as of now, the system of education is merely a spokesperson, or just a mouthpiece if and when reduced further, working under the indirect

control of and echoing not more than the allowed bits of information, ideas, concepts and methods (which, sometimes, get lost in translation) by the institutionalised establishment of science that does do the gate-keeping of its own generationally enriched reservoir of knowledge and knowing. Looking back through the historical looking glass to this paper's delimited period of 200 AD - 600 AD, science and education, in the sense I concern and declared here, happened to exist even back then in Greco-Roman society, albeit, in very different forms from now, as talked about already. Now, after laying out a few key aspects of the then science and education in Greco-Rome in lateral juxtaposition for this timeline as they are supposed to guide any comparison between two or more points of discussion better, I will successively engage with deeper discussions to trace the then interconnections of science and education in Greco-Roman society, one by one. What was the working equation between science and education back then? Were they entirely aloof of each other's existence? Or, did they seldom come close and share mutualism as desperate measures in desperate times? Or, has there forever been a retro-resonance of their present conditional 'co-dependency' as for the process was in the making?

Table 1: Juxtaposing a few key aspects of science and education in ancient Greco-Roman society temporally ranging from 200 AD to 600 AD

Dimension	Science in Ancient Greco-Roman Society from 200 AD to 600 AD	Education in Ancient Greco-Roman Society from 200 AD to 600 AD
Gradation	Study and practice of advanced science was not graded as such.	Education was more or less divided into three grades: primary, secondary and tertiary.
Curricular aspect	Having learned the scientific knowledge offered by the educational courses, interested people could pursue the path of science mostly individually or under a teacher, benefactor, group or 'school'.	Science, or, better to say, rudimentary of some 'subjects' of science, was incorporated mainly in the secondary and tertiary educational curricula.
Diversification	Science had already been branched into defined, distinct disciplines of mathematics, astronomy, medicine, chemistry, botany, zoology, anatomy, mining and metallurgy, mechanics, physics, architecture etc. - merely nominally, though.	Education mainly offered the traditional Greek curriculum of 'septavium': comprised of *trivium* and *quadrivium*.
Popularity	Science, in general, continued to be entitled to ambiguous social status.	Education was becoming so popular that it laid the foundation for a structured and systemised general, public education.
Relationship with the imperial state	Science, for its social status of ambiguity, was 'frenemies' with the state; in times enjoying glorious phases of imperial patronisation, in other times hitting rough patches of stately persecution. The varying	After facing administrative opposition in the nascent stage, education was generally favoured and even sometimes supported in various different ways by the imperial state to its own advantage.

	equation in some cases had to do with the subject of pursuance.	
Incentive	Science primarily excited the grey cells of and rendered the intellectual thrill of knowing to its practitioners. However, people often turned their scientific training into their bread and butter, especially, in medicine, metallurgy, architecture etc.	Education apparently promised different job placements and better future to its clients, nonetheless, failed to keep its promise much often.
Christianity	Science, having rationalism at its core and a pagan cultural lineage as its peripheral shell, was naturally renounced and persecuted by the new state-aided religion, that is, Christianity.	The early 'Christian fathers' knew that education could be weaponised to propagate their religious doctrines and scriptural teachings, and so they did.
Exclusiveness	Science never achieved popularity among the common populace and, due to a good deal of reasons, the practice of many of its branches had to be socially hidden underground, and/or was limited to the menial and/or blue collar classes.	Education broke off of being closely guarded by the private, elite network and arrived at the public forum with the proliferation of new Roman schools. Far from vanishing overnight, social denominations, however, wielded exclusive forces over general public education in different ways.
Power of privilege	The access to science depended on several factors, such as, family resources, background and connections, personal keenness, aptitude and enterprise, availability of competent teachers and training, vocational demand etc.	In spite of the growing attempts for universalisation, faceless forces were still active to monopolise education for the elites.
Failure	Science became corrupt from within by the malignancy of religion and superstition as the mindsets of most of the science practitioners were religiously bent towards irrational prejudices.	The sole goal of education was to discipline the minds of people conforming them to the prevailing norms, and not fostering critical literacy and thinking, and rational individualism as it should have been.

Alexander II once complained against his tutor *Aristotle* publishing his lessons for a wider circulation of his teachings and feared that this would make the bunch of fellows of influence who had the privilege of affording private lessons from the celebrity teacher no better than the common people in the question of knowledge. The royally appointed teacher *Aristotle* assured his favoured student-cum-the golden prince of *Macedonia* that no one could make out much of those publications unless they had access to the in-person instructions taught in the private morning sessions. This one anecdote is enough to set the tone of immanent exclusiveness in ancient Greco-Roman science and education as *Aristotle* - a natural philosopher and an educator - was one of the few intellectuals who projected the lengthiest shadows over the Greco-Roman conscience.

Let us leave the palatial classes behind and arrive at *Lyceum* - the still functioning premier educational and research school of the Grecian-Roman world during the early centuries AD, established by *Aristotle* and an ancient prototype of modern universities and research institutes. Wandering around the famous garden of *Lyceum*, where *Aristotle* loved to deliberate his lectures and participate in discussions, we would see that the gents comprised most of the student and researcher strength. Plus, whatever were their new research developments (mainly through contemplative method) in terms of information were consolidated in written form and added to their in-house collection for future use of their future members - the fruits of their labours were not meant to come out for out-people. Moreover, the style of written documentation was deliberately so esoteric and condensed that only an aid of expert-explanation would make them understandable to the learners. This case of internal ensconcing in *Lyceum* was the rule for other prestigious, similar institutes, such as, *Plato*'s *Academy* in *Athens*, *Ptolem*aic dynasty funded *Museum* in *Alexandria* etc., and not an exception. On the opposite, in the educational, external arena, basic curricular 'science' was ornamental.

Like said before, the *Varro* verified secondary schooling comprised *trivium* and *quadrivium* as two groups of seven communal (or traditional Greek) liberal arts - the second of which consisted of only arithmetic, geometry and astronomy from the so-called 'science' stream. And, medicine and architecture (which the moderns consider 'sciences') were two of the three peripheral adjuncts to the *septavium*. With the access deficiency to the advanced 'scientific research knowledge generated by the higher studies and research institutions which along with their treasured scrolls were necessarily prerogative of monetary luxury and socio-political connection privileges, the mass had to remain satisfied with whatever nominal science knowledge was there to be provided by the humble public grammar schools run on the backdrop of chaotic, noisy forum.

On the one hand, 'advanced' science was conglomerated but education was graded into 3 stages - primary, secondary and tertiary with more or less compartmentalised curricula. On the other hand, though, science was kind of non-diversely institutionalised and one could pursue science as a gestalt whole, science had already been bifurcated, at least, nominally, into numerous branches, such as, physics, botany, zoology, mechanics, dynamics, physiology, pneumatics and a handful more. This regimentation of science as a non-diverse institution made education much less absorptive of the former for a very long time, and even now.

With growing job creations in teaching, rhetoric, Roman law, shorthand and stately administration, education attracted more students and parents as in clientele force shaping a proto-system of public general education. On the other, science did not openly promise any professional growth of the learners as such - except for metallurgy, medicine and architecture possibly. Science mainly interested people seeking adrenaline drive of intellectual and investigative satisfactions and this particular type of people has typically been numerically much lesser. This rarer eligibility or candidacy or congenital intellect for pursuing science is in turn a culturally constructed concept. So, it created a vicious cycle that perpetuates exclusivity in science allowing much lesser number of entrants to penetrate within from without.

In the question of imperial sympathy, after facing an initial stately resistance, especially, the tertiary grade, education enjoyed state-backing in terms of various official edicts promulgating students' stipends, rendering semi-permanent to permanent architectural properties for conducting teaching-learning, ensuring a minimum professional remuneration for teachers securing their interest and protecting the vulnerable knowledge renderer from being exploited by their guardians clientele etc. All because the state understood that steady systematic education could perpetually produce shrewd-minded state workers whose minds were conformed to state-ideology. On the contrary, science received positive response, if any, from the imperial state as the state supremo followed paganism which natural sciences had their roots in. Later, with the imperial religion baton exchange from

paganism to Christianity science as an entity embodying sets of evolving knowledge and practitioners (followers) got stately persecuted as a whole. Science and education, therefore, went to opposite directions down the path of proliferation across these 400 years.

After Christianity became the in-charge, the early Christian fathers realised and knew very well how to weaponise essence of education to theologically take over the public mind - yet, they were solely interested in theological mind conditioning only, not liberal education. Contrarily, the very rational core of science bothered these clergy blokes extremely whose sole agenda was to brainwash people with irrational fear, that is, the new religion, to the formers' own advantage. The result was inevitable - science and science-folks faced the wrath of these Christian fathers and Christianity. Naturally, the environment was no more conducive of unhindered, critical cerebral exercises that science, or anything else for that matter, demands to prosper. This made science further more impervious.

As discussed before, different branches of science faced different fates. As for example, medicine, being an existential essential, somehow survived, even prospered in terms of newer medical schools. While astronomy held both feared, and hence revered, cultural status and, therefore, limped on in astrological garb, alchemy suffered the most, virtually hid underground and behind mystic obfuscation, and lost the last touch of hands-on practicality (which was the very basis of whatever chemical development achieved) and intellectual exchanges.

In a phrase, science and education were 'dramatically opposite dyad' interlinked by series of non-linear connections that will be explored more as follows. Science was never popular as such during this timeline, whereas, education was discovering newer horizons. Still, education, that seemingly broke off of the elitist cloister and freed itself from the marble floored villa drawing rooms to appear at the city streets, yet again, got captured inside the iron-chest of privilege by newer means, such as, the poor parents' burden to pay a state promulgated package-fee to the teacher, big bilingual barrier and ethno-lingo bias, unattractive, insufficient and monolithic curricula, unavailability of competent teacher locally, textbooks and other supplies, cultural differences across the empire etc. And, science, although, went through a creative limbo until the medieval Arabic revival, it was later proved to be a necessary incubating pregnant pause for future flourish as in the parlance of music interludes are.

As just discussed, both science and education failed to get 'universalised'. When something itself is not all-accessible, inclusive and open, it cannot be very welcoming of and prone to mixing with others either - the same happened between science and education. Among multiple dissimilarities, they shared few fundamental similarities, unfortunately all bearing negative connotations, such as, Cartesian (the term was coined much later after medieval French philosopher Rene Descartes, though) mind-body dualism with head over hand, class, gender, religion, orality/literacy binary etc.

It is obvious that a slave fuelled culture would abhor manual work and menial labour - Greco-Roman empire was no exception. The *Ionia*n heritage of dirty hands which was relayed by the *Athen*ian age was a long gone case. Medical teachings were curtailed to lectures only. Dissection, vivisection of cadavers in anatomy classes were only done and demonstrated at the surface level, that too by slaves with workable medical knowledge. Physicians would not collect herbs by themselves anymore; those were outsourced by tribal and forest folks. Making of potions too was done the physician's apprentices and/or slaves. For astronomy and astrology, there already was not much scope using instruments. In virtual absence of modern hypothesis construction procedure, it was mostly practised through naked eye observations and more contemplation for forcefully and, hence, erroneously fitting in the observations into preset theses, not the other way around. Chemical knowledge that took centuries of practical, trial and error procedure to gain a ground that started with primitive metallurgy of prehistoric aeon, crumbled down to the ashes of alchemy. Instead of donning an acid burn lab-coat and whiling away hours by playing with laboratory apparatuses, alchemists turned mystiques and secretly maintained

journals that were practically obscured by the reverence of bombastic literary symbolism.

On the educational front, rhetoric, the blue-eyed tertiary course, became completely devoid of body enactment and, thus of the Greek *Sophisti*c tradition. Law too was reduced to the rote learning of the canon - critical debates on real-time world and its dilemmas were cut off from syllabi. The Roman army officers did not need to learn battle-field skills anymore. Their only duty was to give orders properly. In contradiction though, the shorthanders, pen pushers and other blue collar workers had to give a minimal clerical manual labour, if not much.

Obviously, upper class and associated *denarii* (ancient Roman currency) socio-political connections and other cultural privileges got the stronghold of everything including education and science, except for medicine. As an estimate was provided in the 4th chapter of this thesis, the lion's share of the royal house physicians were slaves or freedmen of Greek descent. Slaves having some working medical knowledge could fetch slave-dealers higher price from the potent customers. However, because of their indignant status these people were exploited more that the freeborn Mr. Rome physicians of lesser number. Something similar of much lesser degree could be seen in the way of living of some vagabond fate-gambler who posed as alchemists with the capacity of making gold.

The more we talk about gender disparity the less it will be irrespective of time and space. While United Nations 2023 report on gender disparity index shows that among about 80% of world populace, 9 out of 10 people irrespective of gender hold at least 1 fundamental bias against women, can anything positive or progressive be thought of the ancient Greco-Romans? Nah, it cannot. And, yes, their mentality and attitude were along the expected lines only. They clubbed women along with non-sapiens animals and slaves in their zoological rungs. The tertiary education was an all-men circle completely devoid of female participants, both as teacher and student. And, as for the institution of science very few random names of individuals and meagre information about them can be sporadically heard of.

Religious (religion roots from irrationalism) tone was another malice that plagued science and education. In spite of the glorious *Ionia*n beginning devoid of divinity, it cannot be said that the pagan foundation of Greek science was ever truly atheistic. Same goes for its successor Roman science, although, Rome was famous for its utility and practicality-philia. It should be remembered that it was in fire-prone Rome, a Senate member, who formed and owned a fire-fighting bucket-band of slaves, was accused of having illegitimate interest and the fire-fighters were disbanded. Moreover, the maximum of the later imperial science practitioners were Christian clergies (because being a god-man and a member of the Church was the most lucrative and idle job back then and maybe even now) having prejudiced and superstitious bent of mind. As in education, the later Greco-Roman empire saw the rise of Episcopal schools replacing the toddling liberal education in Roman schools. Theology denounced and gobbled up the entirety of the liberal curricula.
A common narrative is that orality perpetuates exclusiveness. Yet, the opposite can be said too - literacy is not that economic and, hence, not that inclusive. Being literate demands effort, time and resource to learn to write and the writing soft skills, practise writing to inculcate and retain muscle memories, and procure writing surfaces (if disposable or not reusable) and writing styli, respectively. Literacy too proved to be a hindrance to universalisation of education - an average student coming from a meagre means family could not always afford the writing resources, textbooks (they had to make a copy of the teacher's sample for themselves), time and effort (if they had to help their parents in household chores, farms, workshops etc.). Science shared a paradoxical relationship with literacy which made it tough to struggle for science. At the same time, literacy was expensive, yet, a science researcher had a necessary obligation to document their attained information and knowledge in written form so that it can be validated and circulated by their fellows.

Back then, science and education shared peculiar connections. Science did not penetrate,

or was not allowed to permeate into education much. On the other hand, science was not very much aware of the general pedagogical reality. the other. Again, at the veneer level, education seemed to supersede or surpass science in the question of popularity. But, at the kernel, science, though, persecuted under the Late Empire, had its breeding ground ready to germinate. Once the seedling sprouted in the hands of the Arabs, there was no looking back. Thereafter, education has kept lagging behind. Therefore, the nature of co-dependence between science and education as we know now They both were outsiders to each other and somewhat indifferent about

did not exist back then - it was sort of the opposite - but, the scientific field had already been ploughed and the seed of prosperity had been planted. The rest was just a matter of time.

Now, the nexuses between science and education in ancient Greco-Roman society are to be traced in a tabular form and analysed subsequently as the following.

Table 2: Dimension-wise connections of science and education in ancient Greco-Roman society temporally ranging from 200 AD to 600 AD

Dimension	**Interconnections of Science and Education in Ancient Greco-Roman Society from 200 AD to 600 AD**
Popularity	In the context of popularity, the Roman schools made way for general public education and education become way ahead of science.
Religion	While pagan religion was a nurturer for Greek science that lent to Roman science wholly and allowed a provision of straight, at least, rudimentary, curricular science, Christianity was tolerant of both science and secular education.
Regressive Commonality	Gender, class, orality-literacy binary, religion etc. contributed to the both individual and mutual exclusiveness of science and education.
Mutual Exclusiveness	Education was largely impervious of science.
Stately Involvement	The existence of an enormous empire played its own role in the nexuses of science and education.
Institution in the Making	Education was more conspicuously an in the making institution by then, whereas, science was more of fragmented virtual thought communities. Both were outsider to each other.

Regarding these dimensions science and education in ancient Greco-Roman were interconnected as discussed briefly below.

Thousands of thousands of words have already been spoken and written by academicians and others on how the ancient geographical society of Greece (conquered cultural predecessor of the Greco-Roman empire) is cultural predecessor of the modern west - philologically, philosophically, religiously, mythologically, genetically etc. Regarding its archaic nexuses between the then science and education, whether their mutual commonalities or quintessential uniqueness Greco-Rome might have been a cultural precursor to the western modernity, in a way. The past will help to understand the present.

In imperial Greco-Rome, the Roman schools set in motion the initiation of a systematic general public education. I am in no position to confirmedly comment on the percentages of the young populace pursuing education but definitely education was in vogue, whilst, science necessarily did not receive such widespread attention, had a cultural minority status and limped behind education as an intellectual exercise as seen from a populist perspective. When a cultural entity or system becomes closed, it not only digresses from inclusiveness, but, also becomes conservative and completely unwilling to interact and mix with others. What happened in ancient Greco-

Rome is exactly the same. Beside their own idiosyncratic characteristics, science and education were both affected by the pre-existing exclusivist, regressive forces like gender, class, caste, orality-literacy binary etc. in work as talked about in detail before.

Religion played a role reversal in ancient Greco-Rome chronologically. To be explicit, paganism had been considerably tolerant towards both science and education. With the rise of Christianity, science and liberal education both suffered apocalyptic destruction, one way or another. In the curricular aspect, Grecian pagan education had some science inclusion, however negligible that might be. But, on the flip side, the new Roman Imperial religion, Christianity, coming to power eradicated whatever secular was about education previously including the slight curricular scientific angle.
The Roman Imperial state interfered with education (positively for its own advantage) and science (somewhat sympathetic under paganism and totally intolerant under Christianity) that brought about a sort of homogeneity across the empire. In the ancient Greco-Roman cultures, the educational aspect was an institution of general public education in the process of makings, whereas, science was mainly a few widely dispersed aerosols drifting within the air of thought and these droplets were potent of forming virtual thought community through future possible wider exchanges which already had a subtle curricular connection with education through pedagogy. In a nutshell, in antiquity, Greco-Roman society perspicuously had an overall wide contentious schism existing between science and education.

Conclusion:

Like anything else, science needs pedagogy and education by and large to recruit new entrants as a survival essential; but, for any effective and efficient partnership both of the concerned parties need to be insiders. This, sadly, is not the case even among the modern institutions of globalisation and, science and education are no exception. In antiquity too, when science and education both were in primitive shapes, this outsider status was way more prominent for one party, namely, science, as compared to populist education for various valid reasons as explained just above. Widely considered as the prototype of the modern west world, the Late Greco-Roman Empire witnessed wide science-education schism as the above inferential.

Undoubtedly, education had won the first lap; science was limping far behind in the race of popularity. But, the thing is, when you are secluded, free from perceived ideas, not missed much, do not have exterior exchanges/interactions, or expectations to fulfil, then, if you have the potential, the loneliness can fuel future flourishes. Science, being a knowledge embodiment of rationalism and logic, had that potential. Being a social cultural recluse and minority, it had to develop a special esoteric language for internal interactions which was illegible for the generic outsiders like education and others. That made the difference in the making of science as an even more elitist, influential institution than education in future when time came.

Co-dependency is a broadened term varyingly defined by various psychological concerns. On an average, co-dependency is a kind of interrelationship mutualism where the sidedness is skewed towards ‘the giver’. The other partner is the compulsive ‘taker’ for whom the relationship often proves to be toxic, depriving and self-sacrificing. As described before, in modern times, the two cultural constructs, science and education, share co-dependency in which education is the deprived co-dependent partner. But, as shown above, in antique Greco-Rome, the relational direction was just the reverse as science was the much more socially obscured partner. So, the co-dependency was just the reverse. The skewedness of favouritism lopsided towards education since science suffered the worst brunt of the opposing exclusivist forces like religious persecution, curricular exclusion, barrier of casteism, women’s social invisibility and such. Notwithstanding, since the Arabic revival, science flourished rapidly in the west leaving behind education ever after.

To conclude, it can be safely asserted the connections of science and education in ancient Greco-Roman society have been elucidated in detail. As discussed, there was a type of skewed

connection, namely, a co-dependency between science and education in ancient Greco-Rome, but, still, there are scopes open for further researches on the same.

References:

1. Agnihotri, R. K. (2022). *Language in education: There's power in multilingualism.* Frontline, The Hindu. https://frontline.thehindu.com/cover-story/language-in-education-theres-power-in-multiligualism
2. Anonymous. (2019). *Plato's theory of education explained.* https://www.througheducation.com/platos-theory-of-education-explained/
3. Anthony, D. W. (2007). *The horse, the wheel, and language: How Bronze-Age riders from the Eurasian steppes shaped the modern world.* Princeton University Press.
4. Asimov, I. (1965). *A short history of chemistry.* Anchor Books.
5. Barton, T. S. (1994). *Power and knowledge: Astrology, physiognomics, and medicine under the Roman Empire.* University of Michigan Press.
6. Beard, M. (2009). *Pompeii: The life of a Roman town.* Profile Books.
7. Beard, M. (2014). *Laughter in ancient Rome: On joking, tickling, cracking up.* University of California Press.
8. Beard, M. (2015). *SPQR: A history of ancient Rome.* Profile Books.
9. Benko, S. (1986). *Pagan Rome and the early Christians.* Indiana University Press.
10. Best, J. W., Kahn, J. V., & Jha, A. K. (2017). *Research in education.* Pearson.
11. Bloomer, W. M. (2011). *The school of Rome: Latin studies and the origins of liberal education.* University of California Press.
12. Bloomer, W. M. (Ed.). (2015). *A companion to ancient education.* Wiley-Blackwell.
13. Boardman, J. (1994). *The diffusion of classical art in antiquity.* Princeton University Press.
14. Bonner, S. F. (2012). *Education in ancient Rome: From the elder Cato to the younger Pliny.* Routledge.
15. Borous-Vallianatos, P. (2019). *Brill's companion to the reception of Galen.* National Library of Medicine. https://www.ncbi.nlm.nih.gov/books/NBK540285/
16. Boylan, M. (2015). *Origins of ancient Greek science: Blood – A philosophical study.* Routledge.
17. Brameld, T. (1955). *Philosophies of education in cultural perspective.* Holt, Rinehart and Winston.
18. Brock, W. H. (2016). *The history of chemistry: A very short introduction.* Oxford University Press.
19. Clagett, M. (1955). *Greek science in antiquity.* Abelard-Schuman.
20. Clagett, M. (1961). *The science of mechanics in the Middle Ages.* University of Wisconsin Press.
21. Copleston, F. (1993). *A history of philosophy (Vol. 1): Greece and Rome.* Image Books.
22. Cribiore, R. (2005). *Gymnastics of the mind: Greek education in Hellenistic and Roman Egypt.* Princeton University Press.
23. Cribiore, R. (2007). *The school of Libanius in late antique Antioch.* Princeton University Press.
24. Engels, F. (2010). *The origin of the family, private property and the state.* Penguin Classics.
25. Farrington, B. (1980). *Greek science: Its meaning for us.* Spokesman.
26. Farrington, B. (2017). *Science and politics in the ancient world.* Routledge.
27. Farrington, B. (2021). *Science in antiquity.* Oxford University Press.
28. Feyerabend, P. (1975). *Against method: Outline of an anarchistic theory of knowledge.* New Left Books.
29. Firestein, S. (2012). *Ignorance: How it drives science.* Oxford University Press.
30. Flemming, R. (2000). *Medicine and the making of Roman women.* Oxford University Press.
31. Foucault, M. (1972). *The archaeology of knowledge.* Tavistock Publications.
32. Foucault, M. (1973). *The birth of the clinic: An archaeology of medical perception.* Tavistock Publications.

33. Foucault, M. (1995). *Discipline and punish: The birth of the prison.* Vintage.
34. Freire, P. (2005). *Pedagogy of the oppressed.* Continuum.
35. Furlong, J. (2013). *Education: An anatomy of the discipline.* Routledge.
36. Gatto, J. T. (1992). *Dumbing us down: The hidden curriculum of compulsory schooling.* New Society Publishers.
37. Harari, Y. N. (2014). *Sapiens: A brief history of humankind.* Vintage Books.
38. Illich, I. (2015). *Deschooling society.* Marion Boyars.
39. Kuhn, T. S. (2012). *The structure of scientific revolutions.* University of Chicago Press.
40. Lakatos, I. (1989). *The methodology of scientific research programmes.* Cambridge University Press.
41. Lakatos, I. (2015). *Proofs and refutations: The logic of mathematical discovery.* Cambridge University Press.
42. Latour, B. (1993). *We have never been modern.* Harvard University Press.
43. Lindberg, D. C. (2007). *The beginnings of Western science.* University of Chicago Press.
44. Marrou, H. I. (1964). *A history of education in antiquity.* New American Library.
45. Mattern, S. P. (2013). *The prince of medicine: Galen in the Roman Empire.* Oxford University Press.
46. McEvilley, T. (2012). *The shape of ancient thought: Comparative studies in Greek and Indian philosophies.* Allworth Press.
47. Merchant, C. (1989). *The death of nature: Women, ecology and the scientific revolution.* Harper & Row.
48. Morgan, T. (2007). *Literate education in the Hellenistic and Roman worlds.* Cambridge University Press.
49. Newman, J. H. (2010). *The idea of a university.* Good Press.
50. Noddings, N. (2006). *Philosophy of education.* Avalon Publishing.
51. Nutton, V. (2013). *Ancient medicine.* Routledge.
52. Pangle, T. L. (1988). *The laws of Plato.* University of Chicago Press.
53. Russell, B. (2010). *Education and social order.* Routledge.
54. Russell, B. (2010). *On education.* Routledge.
55. Too, Y. L. (Ed.). (2001). *Education in Greek and Roman antiquity.* Brill.

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RURAL – URBAN MIGRATION AND ITS IMPACT ON URBAN ENVIRONMENT: A CASE STUDY OF JAMSHEDPUR CITY

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Abstract

Migration is one of the main drivers of urbanization, industrialization and economic development. In recent years cities have come to be considered as engines of economic growth as urban areas. Rural and urban migration are important dimensions of migration trend. The urban population of the country shot up as such a high rate due to migration of population from rural to urban areas. Jamshedpur is one of the most important industrial and urban center in India. Tata Nagar was the sole urban node for many decades till villages within its vicinity transformed into urban agglomerations. The concentration of employment opportunities in Jamshedpur urban area attracts several migrant labourers to the city. The present paper aims to analyze the impact of migrants on the environment of Jamshedpur. Urban areas cannot provide sustainable livelihood and appropriate living conditions to all migrants. Migration has some negative impact on people and society and as well as the surrounding environment. This paper based on primary data collection and secondary various Data.

Keywords: migration, urbanization, rural, livelihood, environment

1. Introduction

Migration from rural to urban areas is a defining feature of urbanization in developing countries like India. People migrate in search of employment, education, healthcare, and improved living standards. However, rapid and unplanned migration often creates environmental stress in cities. Jamshedpur, known as the 'Steel City of India', attracts migrants from rural Jharkhand, Bihar, West Bengal, Odisha, and Uttar Pradesh. This inflow has significantly influenced the city's demographic structure and urban environment.

The present study focuses on understanding the patterns of rural–urban migration in Jamshedpur and assessing its environmental consequences.

2. Study Area: Jamshedpur City

Jamshedpur is located in East Singhbhum district of Jharkhand at the confluence of the Subarnarekha and Kharkai rivers. Established in 1919 by Tata Iron and Steel Company (now Tata Steel), the city developed as a planned industrial township surrounded by rapidly growing unplanned settlements.

Key features of the study area:

- Industrial hub dominated by steel, engineering, and allied industries
- Population growth driven mainly by in-migration
- Presence of both planned (Tata-controlled) and unplanned residential areas
- River-based ecosystem vulnerable to pollution

3. Objectives of the Study

The main objectives of this study are:

1. To analyze the trends and causes of rural–urban migration to Jamshedpur.
2. To examine the impact of migration on the urban environment.
3. To identify major environmental problems arising due to migration-induced urban growth.
4. To suggest measures for sustainable urban environmental management.

4. Data Sources and Methodology

The study is based on secondary data collected from:

- Census of India (2001, 2011)
- Jamshedpur Notified Area Committee (JNAC) and Jamshedpur Utilities and Services Company (JUSCO) reports
- Jharkhand State Urban Development reports
- Research articles, books, and government publications
- A descriptive and analytical approach has been adopted. Migration trends and environmental impacts have been analyzed using tables, maps, and thematic interpretation**.**

5. Migration Characteristics and Trends

5.3 Rural–Urban Migration Characteristics (Census 2011)

The composition of migrants in Jamshedpur reveals the dominance of rural–urban migration streams, reflecting the city's role as a major industrial and employment hub.

Table 5.1: Migrant Population Composition in Jamshedpur (2011)

Migration Stream	Share (%)
Rural to Urban	62
Urban to Urban	24
Intra-district	9
Inter-state	5

Source: Census of India, Migration Tables, 2011

The data clearly indicate that rural-to-urban migration constitutes the largest share, highlighting the significance of push factors from rural areas and pull factors associated with industrial employment.

5.1 Migration Trends

Jamshedpur has witnessed consistent population growth over the decades, primarily driven by migration associated with industrial expansion, particularly around Tata Steel and related ancillary activities.

Table 5.2: Population Growth and Migration in Jamshedpur (2001–2011)

Year	Total Population	Percentage Growth	Major Source of Growth
2001	1,104,713	92.8%	Natural increase + Migration
2011	1,337,131	21.0%	Predominantly migration

Source: Census of India

The data suggest that although growth rates have moderated over time, migration continues to be the principal driver of urban expansion.

5.2 Causes of Migration

The causes of migration to Jamshedpur can be broadly categorized into economic, social, and environmental factors. Economic opportunities in industries, construction, transport, and the informal sector act as strong pull factors. Simultaneously, rural distress—manifested in poverty, unemployment, and land fragmentation—pushes populations toward urban centers. Social factors such as access to better education, healthcare, and urban lifestyles further encourage migration. Additionally, environmental stressors such as droughts and declining agricultural productivity in rural areas intensify migration flows.

6. Impact of Rural–Urban Migration on Urban Environment

6.1 Growth of Slums and Informal Settlements

Migration-induced population pressure has significantly contributed to the expansion of slums and informal settlements, particularly in Mango, Jugsalai, Bagbera, and parts of Adityapur.

Table 6.1: Slum Population in Jamshedpur (2011)

Area	Estimated Slum Population	Share of Urban Population
Mango	120,000	High
Jugsalai	65,000	Moderate
Adityapur	70,000	Moderate
Other Areas	45,000	Low

Source: Census of India, Slum Primary Census Abstract, 2011

These settlements are often characterized by inadequate access to basic amenities, resulting in poor living conditions and environmental degradation.

6.2 Land Use Change and Urban Expansion

Rapid migration has accelerated land-use transformation in Jamshedpur. Agricultural and forest lands are increasingly being converted into residential areas. Encroachment along riverbanks and low-lying regions has become common, leading to the loss of green spaces and ecological imbalance. These changes are largely unplanned and reflect gaps in urban governance and planning frameworks.

6.3 Water Resources and Environmental Stress

The growing population has significantly increased water demand, leading to both quantitative and qualitative stress on water resources, including the Subarnarekha River and Kharkai River.

Table 6.2: Water Demand and Supply in Jamshedpur

Indicator	Estimated Value
Daily Water Demand	~350 MLD
Available Supply	~280 MLD
Water Deficit	~70 MLD

Source: JUSCO Annual Reports

Water pollution has intensified due to domestic sewage discharge, industrial effluents, and solid waste dumping along riverbanks.

6.4 Solid Waste Generation

The increase in migrant population has resulted in a substantial rise in solid waste generation, placing additional burden on municipal management systems.

Table 6.3: Solid Waste Generation in Jamshedpur

Year	Waste Generated (TPD)
2001	~350
2011	~500
2021	~650

Source: JNAC & Urban Development Reports

Inadequate waste management infrastructure has led to open dumping, clogged drainage systems, and increased environmental health risks.

6.5 Air and Noise Pollution

Air and noise pollution levels in Jamshedpur have increased significantly due to the growth in vehicular traffic, industrial emissions from steel and ancillary industries, and ongoing construction activities. These factors collectively contribute to deteriorating environmental quality and pose serious public health concerns.

6.6 Spatial Distribution of Migrant Settlements

The spatial distribution of migrants in Jamshedpur reflects uneven urban development. Areas such as Mango, Jugsalai, and Bagbera exhibit high concentrations of migrants, while Adityapur and Parsudih show moderate concentrations. In contrast, planned township areas have relatively low migrant presence, highlighting socio-spatial disparities within the city.

7. Environmental and Social Consequences

Rural–urban migration has led to multiple environmental and social challenges. These include degradation of urban environmental quality, increased vulnerability of migrants to

health risks, growing pressure on civic infrastructure, and the expansion of urban poverty and informal employment.

8. Research Methodology

8.1 Nature of the Study

The study is analytical and descriptive, focusing on long-term migration trends and their environmental impacts.

8.2 Data Sources

The analysis is based on secondary data from Census of India (1901–2011), Slum Census 2011, JNAC reports, JUSCO reports, Jharkhand State Pollution Control Board publications, and relevant academic literature.

8.3 Methods of Analysis

The study employs decadal growth rate analysis, migration stream analysis using census data, and evaluation of environmental indicators such as water demand, waste generation, and slum growth. Spatial analysis is supported through cartographic techniques.

9. Results

9.1 Migration-led Urban Growth

Jamshedpur experienced rapid population growth between 1911 and 1961, coinciding with industrial expansion led by Tata Steel. Post-1991 growth continues to be influenced by migration, especially in informal and service sectors.

9.2 Expansion of Slums

Approximately one-fourth of the city's population resides in slums and informal settlements, indicating a strong link between migration and unplanned urbanization.

9.3 Environmental Stress Indicators

The study identifies significant environmental stress, including a water deficit of about 70 MLD, doubling of solid waste generation since 2001, and increasing river pollution levels.

10. Discussion

Rural–urban migration in Jamshedpur presents a paradox. While it supports industrial growth and economic development, it simultaneously contributes to environmental degradation and infrastructural stress. The coexistence of planned and unplanned settlements highlights uneven urban development. Migrants, largely engaged in low-income occupations, often reside in environmentally vulnerable areas, increasing their exposure to risks.

11. Conclusion

Rural–urban migration has been the primary driver of urban growth in Jamshedpur since the early twentieth century. While it has facilitated economic expansion, its unregulated nature has led to serious environmental challenges such as slum proliferation, water scarcity, and pollution. Sustainable urban development requires integrated planning, improved governance, and enhanced service delivery in migrant-dominated areas.

12. Suggestions and Policy Implications

- Development of affordable housing for migrants
- Upgradation of slum infrastructure
- Strengthening of sewage and waste management systems
- Restoration of river ecosystems
- Promotion of rural development to reduce distress migration

References

- Census of India (1901–2011)
- Census of India (2011), Slum Primary Census Abstract
- JNAC Reports
- JUSCO Annual Reports
- Jharkhand State Pollution Control Board Publications
- Singh, R.B. et al. (2010). *Urban Slums and Environmental Degradation in Indian Cities*

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ENHANCING INNOVATION THROUGH ENTREPRENEURSHIP AND HUMAN CAPITAL DEVELOPMENT

(With Special Reference to Youth of Lucknow)

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Abstract

Purpose – This study explores the connection between human capital and entrepreneurship by identifying the components of human capital. Additionally, it investigates the contribution of entrepreneurship to the development of innovation among the youth in Lucknow.

Design/methodology/approach – The researcher conducted a quantitative study using a custom questionnaire and a sample of 404 individuals between the ages of 18 and 35. The study drew upon a comprehensive review of previous research and practices in the field of human capital and entrepreneurship. The gathered responses were analyzed through the use of structural equation modeling (SEM).

Findings – The study identified three crucial components of human capital development required for entrepreneurship. These factors were determined by analyzing previous literature and were further validated through exploratory factor analysis (EFA), which revealed skills, education, and competence as key elements of human capital development. Moreover, the results also show that there is a significant relationship between entrepreneurship and innovation.

Research limitations – The study was conducted using a quantitative approach and relied on data collected from a sample of 404 young individuals from Lucknow city. As the study focused on a specific social field, the findings cannot be easily generalized to other areas without further research.

Practical implications – The primary goal of the study was to identify the fundamental factors of human capital development necessary for entrepreneurship, with the purpose of promoting innovation. This, in turn, can lead to the creation of employability opportunities and generate value.

Originality/value – There is a scarcity of empirical evidence linking entrepreneurship with the growth of human capital, particularly concerning the youth population of Lucknow. As such, this study has significant relevance for enterprise assistance organizations that seek to keep up with the demands of entrepreneurs who are striving to establish and grow their businesses. The findings of this research can inform and guide the development of support services and training programs that facilitate the cultivation of essential human capital skills required for successful entrepreneurship among young individuals in Lucknow.

Keywords: Entrepreneurship, Human capital development, skills, competence, education and innovation. Introduction:

A country's potential to foster to a large extent is determined by the size and quality of its youth population. Youth have always been taken as the most fundamental component of any nation's population. Youth are necessarily the backbone of a nation who through their energy and passion brings out the dramatic alterations in a nation and the way it functions. Youth being energetic, artistic, innovative, enthusiastic and dynamic in nature constitute the most crucial part of the population. India seems to stand at an advantage because of its huge youth population which is higher than any other nation. India's population is predicted to grow and contribute 17.97% of the total world population by 2030. Not just the overall population, India is expected to record increase in the percentage of its youth population as well. Every third person in every city of India is categorized to be a 'youth' and therefore around 33% of the country's population comprises of youth. Youth, if properly guided and provided the necessary environment that enhances their abilities, skills and capability of working in an efficient environment, can bring socio-economic revolution in the country. While, on the contrary, youth if not directed properly, can bring hurdles in promoting the social, human and economic capital, increase the number of jobless people which increases the level of crime rate, increase in poverty etc. Youth may be defined as people aged between 13-35 years, by the Government of India. But in this research paper, youth is defined as people aged between 18-35 years. After all, today's youth will be the future of India, tomorrow.

Opportunities exists in the environment and wait to be discovered, and those with a superior human capital can discover these opportunities (Chitsaz, Liang, & Khoshsoroor, 2017). In other words, those who enjoy a high level of human capital will identify more businesses in a given period of time. Human capital is defined as a series of knowledge and skills acting as input which leads to outputs such as decisions for self-employment and developing entrepreneurial activities (Ucbasaran et al, 2008). Human capital affects the growth of societies more than any other factor and is a major motivation for people to choose careers (Estrin et al, 2016). It can be claimed that human capital shows one's acquired knowledge, created through competency, attitudes, mental agility, and problem-solving skills, and is an important resource for firms' innovation and regeneration (Unger et al., 2011). Human capital is nor a physical, neither a financial capital but the knowledge, skill, and self-efficacy of individuals (Hosseinpour and Abdollahi, 2015).

Human capital development is critical to the growth of economies in both emerging and developed countries. Human capital was traced back to the 17th century to highlight the cost of lost life in war and other forms of mortality. Contributors to Economics of Human Capital proposed techniques for investing in people in order to earn a return (Khayinga & Muathe, 2018). The concept of human capital and its relationship with success has been a subject of interest for many researchers in the field of entrepreneurship (e.g. Unger et al., 2011). As suggested by Kwon (2009) human is the economic variable charged with the responsibility of overseeing economic activities involving production, consumption and transaction. It can, therefore, be inferred that human capital is a factor of production that can be made more efficient once investments are made in it (Kwon, 2009). Shane and Venkataraman (2000) said, the phenomenon of entrepreneurship has lacked a conceptual framework and there are always attempts how to define entrepreneurship in complex way. However, defining entrepreneurship is an important question. Among many definition, we want to share the opinion of Audretsch and Thurik (2001) who stated that Entrepreneurship encompasses the inherent capability and willingness of individuals, whether independently or in teams, both within established organizations and beyond, to identify and generate fresh economic prospects. These opportunities may manifest through new products, new production methods, new organizational schemes and new product-market combinations.

The major reforms leading to the liberalisation of the Indian economy were passed in the year 1991, the country had witness various unstable governments at national level which hampered its policies and progress. It was in year 1999, when a national party with a decisive mandate came at centre and India started to adopt policies for encouraging innovation and entrepreneurship in the country. In the twenty-

first century, geography of innovations started to change as innovations from emerging nations like China, India and Brazil started to get recognition in the world (Prabhu and Jain, 2015). Innovation has been defined in many ways by authors. However, Yeoh & Mahmood defined innovation as an introduction of new products, searching out unique working methods and techniques, exploring new ideas to solve complex issues, identifying performance gaps, mobilizing support for innovative ideas and transforming innovative ideas into useful applications (Yeoh & Mahmood, 2013). This definition is adopted as it fit for the study.

Review of Literature:

Human capital seems to have a direct relationship with the skills, education, knowledge and abilities of an individual (Fairlie and Robb, 2008). As a result of this perception of human capital, entrepreneurship researchers have been concerned about the relationship between human capital and business success (Ployhart and Moliterno, 2011). The human capital theory suggests that business performance is influenced by an individual's intellectual capital. The basic human capital theory which is a refinement of the marginal-productivity theory has since been become a dominant means of understanding how wages are determined. The theory was largely shaped by Gary S. Becker, an American student of Theodore Schultz. The human capital theory, views schooling and training as an investment in skills and competences (Becker, 1964). It holds that earnings in the labour market are dependent upon the individual's information and skills set. It is further argued that, based on rational expectations of returns on investment, individuals make decisions on the education and training they receive as a way of augmenting their productivity that is, that investments in human capital depend on the costs of acquiring the skills and the returns that are expected from the investment. Thus, Human capital is a core factor that influences the entrepreneurial process since it can increase the capability to perform entrepreneurial tasks, exploit potential opportunities, acquire other resources, such as financial and physical capital, and assist in the accumulation of knowledge and skills (Brush et al., 2001).

Human capital enhances entrepreneurs' ability to take advantage of new opportunities and helps them access physical and financial resources much easier and acquire new knowledge and skills. Ucbasaran et al. (2008) examined entrepreneurial opportunities and concluded that the different dimensions of human capital are related to the identification and incorporation of entrepreneurship opportunities. Consequently, one of the factors affecting the development of entrepreneurial activities is human capital which not only prepares the conditions for identification, evaluation, and exploitation of diverse entrepreneurship opportunities, but also affects people's entrepreneurial intention and behaviors. In line with this hypothesis, Hindle et al. (2009) assert that the process of entrepreneurship development is formed by human capital. Also, Hosseinpour and Mohammadi's (2015) studies showed that human capital with knowledge, skills, and self-efficiency can lead to entrepreneurial behaviors. Consistent with the present study, Chitsaz et al. (2019) contend that human capital increases competencies for discovering and utilizing opportunities and helps people access other useful physical and financial resources easier and acquire new skills and knowledge. In general, entrepreneurs with high levels of human capital are more likely to be exploiting a business opportunity (Acs et al., 2005). Entrepreneurship expresses the individual's intention toward the search for new and better business opportunities, through the search for the resources necessary to exploit these opportunities. This process can be supported through human capital implementation and training strategies (Obisi and Anyim, 2012), which favor the exchange of notions and open up opportunities for innovation (Hormiga et al., 2011).

In a constantly changing world, innovation is no longer optional, it is an inevitability (McKeown, 2008). Entrepreneurship exists in various environments, leading to economical growth through a variety of innovations created by people in response to economic situations (Shepherd et al, 2008). The study of Zhao (2001) state that entrepreneurship and innovation are complementary, and a combination of the two is vital to success and sustainability in today's dynamic and changing environment. Makhdoom et al. (2019) study

suggests that entrepreneurial personality traits have a direct positive impact on innovative activities. So, another important implication for the entrepreneur is also generated that he/ she should be proactive, innovative and risk-taker, as these traits also encourage innovation. Research studies do indicate that entrepreneurship and innovation go hand-in-hand (Kwaku and Ko, 2001); one feeds the other. However, Landström et al. (2012) argue that there is a need for more deeply integrating innovation and entrepreneurship and thus opening the path to developing "entrepreneurship by opportunity" in this field of research.

Conclusively, Entrepreneurship can grow and be sustained only when the human capital is properly harnessed, nurtured and developed. Without a well-developed human capital, entrepreneurship would remain a distant dream (Obisi and Anyim, 2012). Individuals who have higher knowledge, skills, and self-efficacy, act with more innovation and solve problems more quickly (Alpkan et al, 2010). Innovation is part of entrepreneurship and the individual is the main driver, because through his or her knowledge and skills he/she allows companies to effectively exploit technology (Becker, 2009). In addition, Brunnshweiler (2008) stated that lack of effective and efficient human capital prevents entrepreneurship, innovation and creativity which consequently prevent diversification. Thus, this particular study fulfils the gap by helping in surveying which particular components are competent for development of human capital and establishing their correlation with entrepreneurship, which play vital role for innovation.

Research objectives:

Following are objectives of the study-

- To identify the factors affecting human capital development for youth of Lucknow district.
- To analyse the relationship between factors of human capital development and entrepreneurship for youth of Lucknow district.
- To analyse the relationship between entrepreneurship and innovation for youth of Lucknow district.

Research methodology:

This empirical study follows a positivistic-quantitative research design that is exploratory and descriptive in nature. It utilizes a deductive approach to test the hypothesis and adopts a cross-sectional study assumption to achieve its objectives. 404 eligible responses were analysed to attain the objective and testing the hypothesis. The data was collected through questionnaires, and the analysis was conducted using SPSS and AMOS software. The reliability of the data was tested using Cronbach's alpha, while structural equation modelling (SEM) was used to test the null hypothesis. The following null hypotheses were investigated in an attempt to achieve the above objective:

1. H0 = There is a no significant relationship between skills and entrepreneurship for youth of Lucknow district.
2. H0 =There is a no significant relationship between education and entrepreneurship for youth of Lucknow district.
3. H0 = There is a no significant relationship between competency and entrepreneurship for youth of Lucknow district.
4. H0 = There is a no significant relationship between entrepreneurship and innovation for youth of Lucknow district.

A self-constructed instruments (**Table 1**), based on the cited literature sources, and existing measuring instruments were used in this study to measure the variables. Statements were modified and simplified to avoid ambiguity and confusions among respondents.

Table 1: Summary of Measuring Instrument

CONCEPT	CONSTRUCT	Ref. for CONSTRUCT	Ref. of INSTRUMENT
HumanCapital Development	1.Education	Khayinga, C. M., & Muathe, S. (2018).	Mubarik,M. S. (2015).
	2. Skills	Khayinga, C. M., & Muathe, S. (2018).	Mubarik,M. S.(2015).
	3. Competency	AGU, A. O. (2021).	AGU, A. O. (2021).
Entrepreneurship			Yasin, N. A., Ridjal, S., & Jufri, M. (2019)
Innovation			Patel, K. (2010).

***Source*:** Author

Conceptual Framework: -

a. Education and Entrepreneurship:

Davidsson and Honig, (2003) have found correlations between having more years in education, or a higher qualification achieved, and being more likely to set up a business. Similarly, Ucbasaran al., (2008) suggested that entrepreneurs having higher levels of education gave the impression of their 'innate productivity' to potential stakeholders in a business. Kourilsky and Walstad's (2007) research suggested that whereas high school students perceived having higher levels of education as being an important investment for becoming an entrepreneur, actual business owners did not. The evidence from this study has shown that no participants found any of their educational experiences to have inspired them to consider an entrepreneurial career, but some young entrepreneurs recognised that school had taught them necessary knowledge and skills. A contribution is made here to the existing human capital literature, since previous studies have not identified what specific knowledge and skills learned at school may assist an entrepreneurial career.Skills and Entrepreneurship:

According to Nwanaka and Amaehule (2011), possessing skills is crucial in preventing young people from becoming social outcasts. By undergoing vocational training and acquiring skills, individuals can secure employment opportunities, which can help reduce crime rates such as armed robbery, stealing, and youth unrest. The study's findings also support this idea that acquiring relevant skills can effectively combat social vices in society. Teece (2011) agreed that there are strong links between effective entrepreneurship and human capital development. This is seen in the light that entrepreneurs were not born but were made through skills, education and experiences acquired. Skills and knowledge can be human capital outcomes acquired through investments in formal and non-formal schooling, practical learning and work experience, which contribute to productivity and success (Unger et al. 2011). The authors who have been study how entrepreneurs manage to capture the opportunities offered by technology, focused on the development of skills (Giampaoli et al., 2017).

b. Competency and Entrepreneurship:

Mardikaningsih et al., (2022) highlight the need for MSMEs to develop and enhance their competencies, adopt innovation and technology, and access a supportive business environment to ensure their long-term survival. Huang et al. (2022) provides a comprehensive and holistic model of competencies required for success in the business environment. The study also highlights the importance of development in building and maintaining these competencies in the context of a rapidly changing business environment. The study conducted by Mizser et al. (2022) focuses on identifying the key competences required by young entrepreneurs in the era of digitalization.

c. Entrepreneurship and Innovation:

Entrepreneurship is seen as a way of promoting economic growth through innovation and job creation (Stenholm et al. 2013). According to the Global Entrepreneurship Development Institute (GEDI), there is a strong positive association between entrepreneurship, economic growth and innovation. Young knowledge and social networks that help in the establishment of successful undertakings that decrease the level of unemployment thereby contributing to economic wellness and innovation (Chauhan & Aggarwal, 2017). **Figure 1** shows the graphic presentation of conceptual model

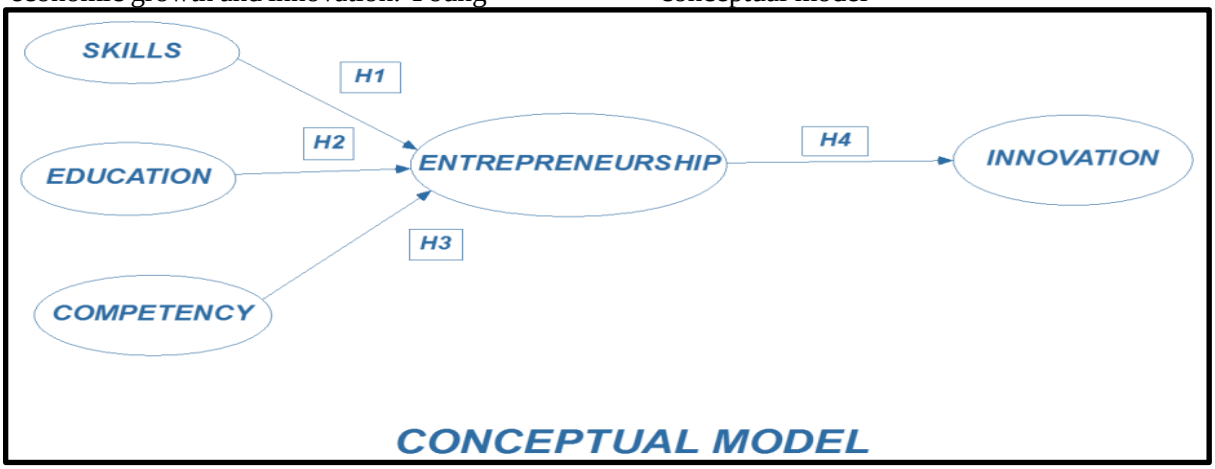

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Figure 1: *Conceptual Framework*

Data Analysis

Demographic Profile of the Respondents:

Gender of the Respondents:

The following **Table 2** describes the age group wise gender distribution of the respondents. Gender is classified in two categories i.e. male and female. It is apparent from analysis that 57% were male and 43% were female respondents from 18-24 age group as participants. In case of 24-35 age group, 53.92% of them were male and 46.08% of respondents were female. Overall respondents from both the age group were; 55.44% of them were male and 44.56% of them were female

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Table 2: *Gender of the Respondents*

	18-24 age group		**24-35 age group**		**Total**	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**
Male	114	57.00	110	53.92	224	55.44
Female	86	43.00	94	46.08	180	44.56
Total	**200**		**204**		**404**	

Academic qualification of the Respondents:

The academic qualification of the respondents is a crucial factor that deserves attention. Education plays a fundamental role in developing critical thinking skills, long-term strategic planning abilities, and the capacity to respond to situations logically. As shown in **Table 3**, 7.5% of all participants held a minimum qualification of a 12th-grade, while 46.5% were graduates, 29.0% were postgraduates, and 17% had other qualifications in the age group of 18-24. In the 24-35 age group, 2.94% of participants had at least a 12th-grade education, while 57.35% had a graduate degree, 30.39% held a postgraduate degree, and 9.31% had other qualifications. Overall responses of both age groups, 5.20% had up to a 12th-grade education, 51.98% were graduates, 29.70% were postgraduates, and 13.12% held other qualifications.

Table 3: *Academic Qualification of the Respondents*

Particular	**18-24 age group**		**24-35 age group**		**Total**	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**
12th Pass	15	7.50	06	2.94	21	5.20
Graduation	93	46.50	117	57.35	210	51.98
Post-Graduation	58	29.00	62	30.39	120	29.70
Others	34	17.00	19	9.31	53	13.12
Total	**200**		**204**		**404**	

Note: *Others included: diploma and skilled ersonal.*

Occupation of the Respondents:Table 4 shows that, among participants in the age range of 18 to 24, 73.0% were students, 2.0% were government employees, 8.0% were private employees, and 17% were involved in other types of employment. 10.78% of participants in the 24-35 age group were students, 18.62% worked for the government, 43.64% for the private sector, and 26.06% held other employment, including contract work, paid internships, etc. Overall results for both age groups show that 41.58% of respondents were students, 10.40% had government occupations, 25.99% worked in the private sector, and 22.03% had jobs other than those in the public or private sectors

. Table 4: ***Occupation of the Respondents***

Particular	**18-24 age group**		**24-35 age group**		**Total**	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**
Students	146	73.00	22	10.78	168	41.58
Govt. employee	04	2.00	38	18.62	42	10.40
Privet employee	16	8.00	89	43.64	105	25.99
Others	34	17.00	55	26.96	89	22.03
Total	**200**		**204**		**404**	

Note: *Others included: Trainee, Internship and Contractual or Temporary employee.*

Application of Exploratory Factor Analysis:

Table 5: *KMO and Bartlett's Test*

Kaiser-Meyer-Olkin Measure of SamplingAdequacy.		.88
Bartlett's Test of Sphericity	Approx. Chi-Square	5520.44
	df	190
	Sig.	.000

Table 6: *Rotated Component Matrix*

Items	Component				
	1	2	3	4	5
I1	.885				
I2	.869				
I3	.838				
I4	.812				
I5	.757				
E1		.881			
E2		.853			
E3		.804			
E4		.794			
E5		.730			
C1			.871		
C2			.860		
C3			.840		
C4			.801		
S1				.859	
S2				.830	
S3				.797	
ED1					.826
ED2					.817
ED3					.795
Extraction Method: Principal Component Analysis. *Rotation Method: Varimax with Kaiser Normalization.*					
Rotation converged in 6 iterations.					

Table 5 show the Kaiser-Meyer-Olkin measure result which ensure the sampling adequacy. The KMO = .883 which categorised under "great". Bartlett's test of sphericity, χ^2 = 5520.440, $p < .001$, indicated that correlations between items were sufficiently large for principal component analysis.

Table 6 shows the factor loadings after rotation. The items that cluster on the same components suggests that component 1 represents - innovation, component 2 represents - entrepreneurship, component 3 represents - competency, component 4 represents – skills and component 5 represents – education.

Evaluating Measurement Model: The first step in SEM analysis is to validate the measurement models of each construct. The process of SEM starts with the Confirmatory Factor Analysis (CFA) to ascertain the construct validity and Goodness-of-fit of model. Confirmatory Factor Analysis (CFA) was computed using AMOS to assess the measurement model (Figure 2).

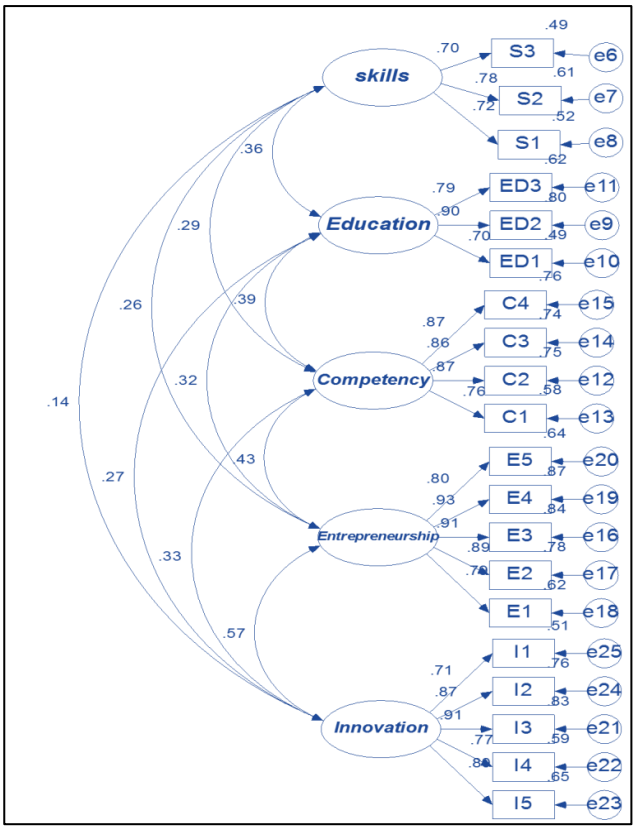

Figure 2: *Measurement Model – CFA*

The model-fit measures were used to assess the overall goodness of fit (CMIN/df, GFI, CFI, TLI, SRMR, and RMSEA) and all values were within their respective common acceptance levels. The five-factor model (skills, education, competency, entrepreneurship, and innovation) yielded good fit (**Table 7**) for the data: CMIN/df = 2.568, GFI = .908, CFI =.954, TLI = .946, SRMR = .040, and RMSEA=.062. After assessing model fit, the model is utilized to establish reliability and validity.

Table 7: *Assessing Model Fit*

Fit Indices	**Recommended Value**	**Source(s)**	**Obtained Value**
P	Insignificant	Bagozzi & Yi (1988)	0.000
CMIN/df	3-5	Marsh and Hocevar (1985)	2.568
GFI	>0.90	Hair et al.(2010)	.908
CFI	>0.90	Bentler (1990)	.954
TLI	>0.90	Bentler (1990)	.946
SRMR	<0.08	Hu & Bentler (1998)	.04
RMESA	<0.08	Hu & Bentler (1998)	.062

The factor loadings in a CFA estimate the direct effects of unobservable constructs on their indicators. This make us know how much of the variance in the indicator is explained by the unobserved construct. The acceptable factor loading is if standardized factor loading that is greater than .70 or explains at least half of the variance in the indicator (.702 =.50), then your indicator is providing value in explaining the unobserved construct. If it's not explaining at least half of the variance, that indicator is contributing little to the understanding of the unobservable construct (Awang,2015). The standardized factor loading established range between 0.70 and 0.93, which fitted in the threshold of factor loading (**Table 8**). Hence, it can be state that every indicator is loading on its factor.

Construct reliability is usually assessed using composite reliability and Cronbach's alpha. Cronbach's Alpha can be calculated using SPSS whereas Composite Reliability is calculated based on factor loadings in AMOS. Both values are interpreted using the guidelines offered by Nunnally and Bernstein (1994) who suggest 0.7 as a benchmark for a modest reliability applicable. Cronbach Alpha for each construct in the study was found over the required limited of .70 (Nunnally and Bernstein,1994). The alpha value lies between .77 to .913, which show good reliability. Composite reliabilities ranged from .78 to .94 above the 0.70 benchmark (Hair et al., 2010). Hence, construct reliability was established for each construct in the study. **Table 8** shows the result of reliability. Convergent validity is assessed using Average Variance Extracted (AVE). The AVE indicates how much of the indicators' variance can be explained by the latent unobserved variable. An AVE greater than 0.50 provides empirical evidence for

Table 8: Loading, Reliability and Convergent Validity

Items	Factor loading	Cronbach's Alpha	Compositereliability	AVE
SKILLS				
S1	0.720	.835	0.78	0.54
S2	0.782			
S3	0.700			
EDUCATION				
ED1	0.701	.777	0.84	0.64
ED2	0.896			
ED3	0.789			
COMPETENCY				
C1	0.761	.931	0.91	0.71
C2	0.868			
C3	0.861			
C4	0.874			
ENTREPRENEURSHIP				
E1	0.787	.906	0.94	0.75
E2	0.885			
E3	0.914			
E4	0.932			
E5	0.800			
INNOVATION				
I1	0.715	.915	0.91	0.67
I2	0.870			
I3	0.910			
I4	0.766			
I5	0.804			

convergent validity (Bagozzi & Yi, 1988), as the corresponding latent variable explains more than half of the variance in the belonging indicators. AVE is calculated by taken sum of squares of the factor loadings and dividing it by the no. of items in the unobserved latent variable. According to Hair et al. (2016), if the average variance extracted is greater than 0.4 and composite reliability is higher than 0.6, the convergent validity of the construct is still acceptable. Hence, the scales used in the present study have the required convergent validity. The result is presented in **Table 8**.

Discriminant validity

Henseler et al. (2015) proposed an approach based on the multitrait-multimethod matrix, to assess discriminant validity called the Heterotrait - Monotrait ratio of correlations (HTMT). If the HTMT value is below 0.90, discriminant validity has been established between two reflective constructs. All ratios were less than the required limit of .85 (Henseler et al., 2015), as shown in **Table 9**. Hence, discriminant validity was established.

Table 9: *Discriminant Validity – HTMT Ratio*

	I	E	C	ED	S
I					
E	0.57				
C	0.34	0.43			
ED	0.27	0.33	0.39		
S	0.14	0.26	0.29	0.37	

***Note**: I= Innovation, E= Entrepreneurship, C=Competency, ED=Education, S=Skills*

Structural Equation Modelling (SEM):

After examining the measurement model and modification indices in AMOS, the next step to test a hypothesis would be to evaluate the structural model. This involves specifying the relationships between the latent variables in the model. It is the second part of the two-part structural equation modeling (SEM) process. In this particular study SEM is utilized through maximum likelihood estimation (MLE). **Figure 3** (Standardised) present the AMOS graphics of structural model and **Table 10** shows the structural model fit.

Table 10: *Structural Model Fit*

Fit Indices	**Recommended Value**	**Source(s)**	**Obtained Value**	**Model Fitness**
CMIN/df	3-5	Marsh and Hocevar (1985)	1.919	Good Fit
GFI	>0.90	Hair et al.(2010)	0.931	Good Fit
CFI	>0.90	Bentler (1990)	0.973	Good Fit
TLI	>0.90	Bentler (1990)	0.968	Good Fit
SRMR	<0.08	Hu & Bentler (1998)	0.049	Good Fit
RMESA	<0.08	Hu & Bentler (1998)	0.048	Good Fit

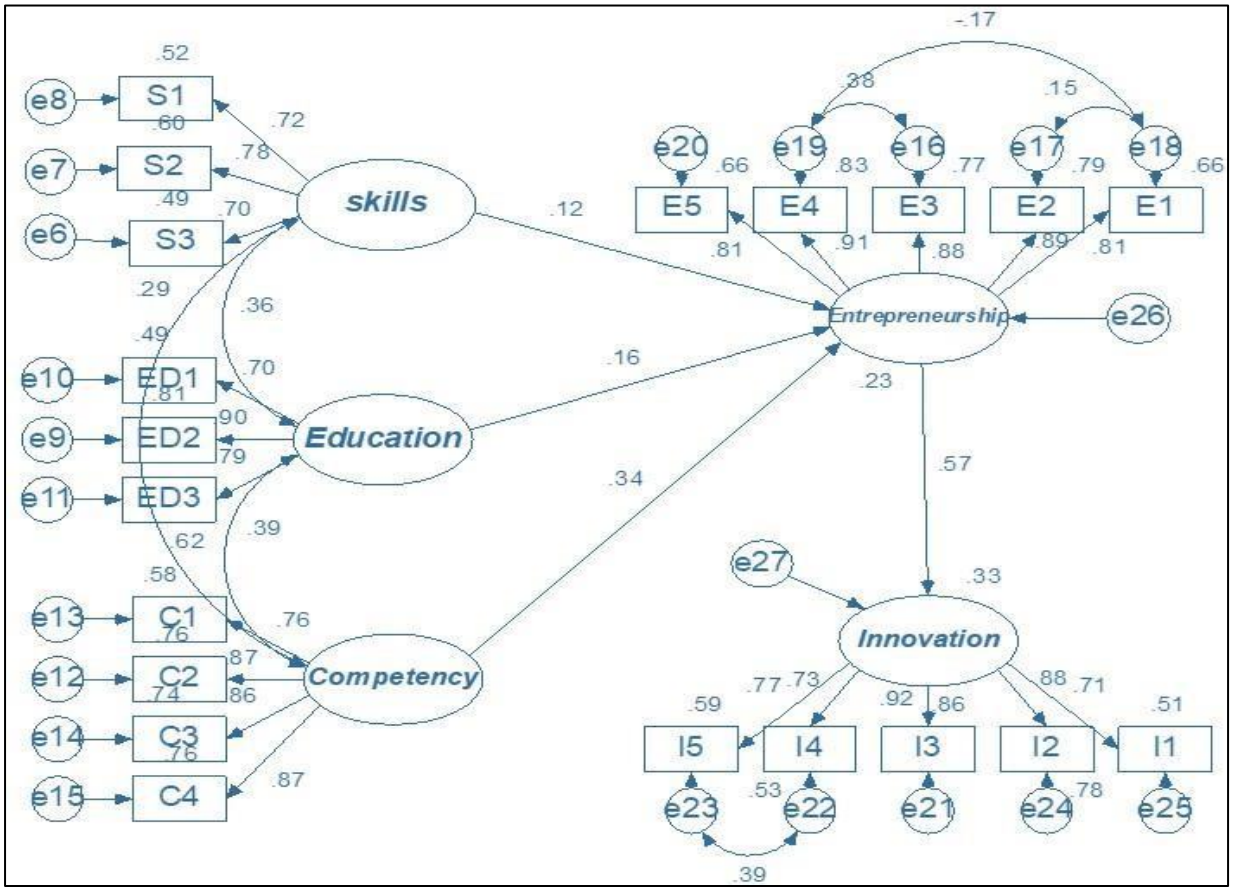

Figure 3: Model in SEM -AMOS Graphic (Standardized Regression Weights)

Testing of Hypothesis:

Table 11: ***Testing of Hypothesis Through Regression Weights***

Construct	Path	Construct	Unstd. Estimates	Stand. Estimates	S.E.	C.R.	ρ	Output
Entrepreneurship	<---	Education	.118	.155	.045	2.656	.008	**Sig.**
Entrepreneurship	<---	Competency	.255	.337	.042	6.038		**Sig.**
Entrepreneurship	<---	skills	.104	.119	.052	2.020	.043	**Sig.**
Innovation	<---	Entrepreneurship	.664	.573	.057	11.682		**Sig.**

Testing of First Hypothesis:

H0: There is no significant relationship between education and entrepreneurship

The above result shows the relationship between entrepreneurship and education. The estimate value (unstandardized 0.118 and .155 standardized) indicates a positive association between the two variables. In other words, as education increases, entrepreneurship is likely to increase as well. The S.E (Standard Error) value of 0.045 indicates the level of accuracy of the estimate. A lower S.E indicates a higher degree of accuracy in the estimate. In this case, the S. E value is relatively low, indicating a high level of precision in the estimate of the relationship between entrepreneurship and

education. The CR (Critical Ratio) value of 2.656 shows the level of significance of the estimate. A higher CR value indicates a greater level of significance. This indicates that the estimate is statistically significant at the 95% confidence level. The P label value of 0.008 shows the level of significance of the estimate in terms of probability. The P value is the probability that the estimate is due to chance. In this case, the P value is less than 0.05, which is the standard threshold for statistical significance. This means that the estimate is highly unlikely to be due to chance and is statistically significant. Taken together, the results suggest that there is a positive and significant relationship between entrepreneurship and education. Thus, the above hypothesis is not supported.

Testing of Second Hypothesis:

H0: There is no significant relationship between competency and entrepreneurship

The result depicts that there is a relationship between entrepreneurship and competency. Specifically, the estimated coefficient for the relationship is 0.255, which indicates that a one- unit increase in competency is associated with a 0.255-unit increase in entrepreneurship. The standard error (SE) for the estimate is 0.042, which is relatively small. This suggests that the estimate is likely to be precise and reliable. In addition, the critical ratio (CR) for the estimate is 6.038, which is relatively large. This suggests that the estimate is statistically significant and unlikely to be due to chance. The p-value for the estimate is denoted by "" which suggests that it is very small. In most cases, this would indicate that the estimate is statistically significant at the 0.001 level, which means that there is strong evidence to reject the null hypothesis that there is no relationship between entrepreneurship and competency.

Testing of Third Hypothesis:

H0: There is no significant relationship between skills and entrepreneurship

The estimated effect size of .104 suggests that entrepreneurship have a positive association with skills outcome. The positive effect size suggests that higher levels of entrepreneurship are associated with a better skill, which could be anything from higher profits to increased innovation. The standard error of .052 suggests that the estimate of the effect size is relatively precise. This means that fairly confident in the estimated effect size and that it is unlikely to be due to chance or random variation. The critical ratio of 2.020 indicates that the estimated effect size is statistically significant at the .05 level, meaning that there is less than a 5% chance that the observed effect is due to chance. This suggests that the association between entrepreneurship and the skills is likely to be real and not just a fluke. The p-value of .043 provides further evidence of statistical significance. This value suggests that there is only a 4.3% chance of obtaining an effect size as large as or larger than the observed effect size, assuming that the null hypothesis (i.e., no effect) is true. This provides additional support for the alternate hypothesis that entrepreneurship is associated with a skill.

Testing of Fourth Hypothesis:

H0: There is no significant relationship between entrepreneurship and innovation

The estimate value of 0.664 suggests that there is a positive relationship between innovation and entrepreneurship. Specifically, for every one-unit increase in entrepreneurship, there is a 0.664-unit increase in innovation. The standard error value of 0.057 indicates the precision of the estimate value. It suggests that the estimate is likely to be within 0.057 units of the true value. This develop fairly confident in the estimate value of 0.664, as it is likely to be a reliable estimate of the true relationship between innovation and entrepreneurship. The critical ratio value of 11.682 is used to determine whether the estimate value is statistically significant. In this case, the critical ratio value is very high, which means that the estimate is statistically significant at a confidence level of 99%. In other words, the relationship between innovation and entrepreneurship is not due to chance. The high critical ratio value indicates a strong relationship between innovation and entrepreneurship, which suggests that entrepreneurship is an important driver of innovation. This finding is consistent with the widely held belief that entrepreneurship is a driving force for innovation, as entrepreneurs

are often motivated to create innovative products, services, or business models that meet unmet market needs. Thus, the above null hypothesis is rejected. **Table 12** present the summary of testing of hypothesis

Hypothesis tested	***Null hypothesis***	**Result**
1. *H0: There is no significant relationship between education and entrepreneurship*	**Rejected**	**Support Alternate Hypothesis**
2. *H0: There is no significant relationship between competency andentrepreneurship*	**Rejected**	**Support Alternate Hypothesis**
3. *H0: There is no significant relationship between skills and entrepreneurship*	**Rejected**	**Support AlternateHypothesis**
4. *H0: There is no significant relationship between entrepreneurship and innovation*	**Rejected**	**Support Alternate Hypothesis**

Table 12: *Summary and Results*

Discussion and Conclusion:

The prime objective of this study is to test the influence of Human Capital Development (HCD) on entrepreneurship, which further led to innovation in context of youth. To test this objective its divided into four hypotheses and SEM a statistical technique is utilized. The result of testing hypothesis states that HCD through its determined factor namely skill, education and competency had an influence on entrepreneurship in a significant and positive way. Moreover, it also found that entrepreneurship and innovation are strongly correlated to each other.

The empirical result depicts that education association with entrepreneurship. In supportive to this, the study by Estrin et al. (2013), it was found that education plays an important role in promoting entrepreneurship in transition economies. The authors concluded that education provides individuals with the necessary skills and knowledge to identify and exploit entrepreneurial opportunities, and that higher levels of education are associated with greater entrepreneurial activity. Similiarly, a study by Minniti and Naudé (2010) found that education is positively correlated with entrepreneurial activity in both developed and developing countries. The authors concluded that education provides individuals with the skills and knowledge necessary to identify and exploit entrepreneurial opportunities, and that higher levels of education are associated with greater entrepreneurial activity. Another study by Bosma et al. (2012) found that higher levels of education are associated with a greater likelihood of becoming an entrepreneur. The authors concluded that education provides individuals with the skills and knowledge necessary to identify and exploit entrepreneurial opportunities, and that higher levels of education are associated with a greater likelihood of pursuing entrepreneurial careers. The significant and positive correlation between skills and competence with entrepreneurship is found by this study. The result is supported by Rauch and Hulsink (2015) study, it was found that entrepreneurs with higher levels of competencies were more likely to be successful in their ventures. The authors concluded that competencies are an important component of human capital development for entrepreneurs, and that they play a crucial role in the identification and exploitation of entrepreneurial opportunities. Additionally, Kautonen et al. (2013) found that

entrepreneurial competencies are positively correlated with entrepreneurial intention and behavior. The authors concluded that competencies are an important component of human capital development for entrepreneurs, and that they play a crucial role in the identification and exploitation of entrepreneurial opportunities.

The result also reflects a strong association between entrepreneurship and innovation. In a study by Audretsch and Keilbach (2004), it was found that entrepreneurship promotes innovation by creating new products, services, and processes. The authors concluded that entrepreneurship is an important driver of innovation, as entrepreneurs are more likely to takerisks and pursue novel ideas. Similarly, Stam and van Stel (2011) found that entrepreneurship is positively correlated with innovation activity at the regional level. The authors concluded that entrepreneurship plays an important role in promoting innovation, as entrepreneurs are more likely to introduce new products, services, and processes to the market. Another study by Acs et al. (2009) found that entrepreneurship is positively correlated with innovation at the country level. The authors concluded that entrepreneurship is an important driver of innovation, as entrepreneurs are more likely to introduce new products, services, and processes to the market, and to create new industries and markets. Overall, these result provide evidence that human capital development in context of entrepreneurship is important as it's have strong influence. Moreover, development of human capital through education, skills and competency provide market and economy more technical and innovative entrepreneurs.

Suggestions:

1. In order to gain from the youthful population, policymakers must develop measures aimed at integrating youth into the workforce with more alternatives and enough resource availability.
2. Develop an innovation hub or incubation centres for aspiring entrepreneurs to provide them with resources, mentoring, and networking opportunities. Such centres can provide resources such as workspace, access to funding, and training programs.
3. Establish partnerships between industry and academia to facilitate knowledge transfer and support research and development activities. This can help in fostering innovation and entrepreneurship by providing access to research and development facilities, funding, and mentorship.
4. Provide access to finance through government schemes, venture capital, and angel investors to support start-ups and innovation. This can help in providing the necessary funding to start-ups and entrepreneurs who are just starting out.
5. Foster a culture of innovation and risk-taking by recognizing and celebrating successful entrepreneurs and their contributions to the economy. This can be done by organizing events such as start-up competitions, award ceremonies, and networking events.
6. Support entrepreneurship clusters and networks to facilitate collaboration and knowledge- sharing among entrepreneurs and start-ups. This can be done by creating networks of entrepreneurs, start-ups, and investors to share knowledge, expertise, and resources.
7. Develop policies and initiatives that support innovation in sectors such as technology, healthcare, agriculture, and manufacturing. This can be done by creating policies that promote innovation in these sectors, providing funding and incentives for start-ups in these areas, and encouraging partnerships between start-ups and established businesses in these sectors.

Limitation of The Study:

There are certain factors that limit the scope of the study. The following points elaborate on these limitations:

1. Population: The study is limited to only one district, which is Lucknow. This means that the findings of the study may not be generalizable to

other districts or regions.

2. The study focuses solely on the population of Lucknow district, which restricts the generalizability of its findings to other districts or regions.
3. Samples: The study focuses on youth aged between 18-35 only, which limits the generalizability of the findings to other age groups.Sampling frame: To collect data for the study, the university and industries situated in urban and rural areas of Lucknow district were selected as the sampling frame. This means that the findings may not be applicable to other settings.
4. Scale: The scale used to measure human capital development consists only of three factors, namely skill, education, and competency. While these factors are comprehensive, the scale's limitations limit the scope of the study.

Future Scope:

1. Expand the scope of the study: While study provides important insights into the relationship between human capital development, entrepreneurship, and innovation, future research could expand the scope of the study to explore additional factors that contribute to entrepreneurial success, such as social capital, access to funding, or industry-specific knowledge.
2. Conduct a longitudinal study: The study provides a cross-sectional analysis of the relationship between human capital development, entrepreneurship, and innovation. Conducting a longitudinal study that tracks the same group of individuals over time could provide important insights into the causal relationship between these factors.
3. Explore the impact of cultural and social factors: This study focuses on the impact of human capital development on entrepreneurship and innovation, it does not explore the potential impact of cultural and social factors. Future research could explore how cultural and social factors impact the development of human capital, as well as the relationship between human capital development, entrepreneurship, and innovation.
4. Use alternative research methods: While SEM is a powerful tool for exploring the relationship between multiple factors, alternative research methods could provide additional insights. For example, qualitative research methods could be used to explore the experiences and perspectives of entrepreneurs and how they relate to human capital development. Compare results across different contexts: This study focuses on a specific context i.e youth population. Future research could compare the results across different contexts or populations to explore whether the relationship between human capital development, entrepreneurship, and innovation is consistent across different settings.
5. Apply the findings to practical settings: While study provides important theoretical insights, applying the findings to practical settings could provide additional value. For example, the findings could be used to inform policy initiatives aimed at promoting entrepreneurship and innovation, or to guide educational programs designed to help individuals develop the skills and competencies needed to succeed as entrepreneurs.
6. Investigate the impact of different forms of education: The study identifies education as a key factor of human capital development, but does not explore the impact of different forms of education (e.g., formal education, on-the-job training, informal learning). Future research could explore how different forms of education impact entrepreneurship and innovation outcomes.
7. Compare the impact of different types of entrepreneurship: This

study does not differentiate between different types of entrepreneurship (e.g., high-growth entrepreneurship, lifestyle entrepreneurship). Future research could investigate how human capital development impacts different types of entrepreneurship and their associated innovation outcomes.

8. Explore the impact of industry-specific knowledge: The study identifies skills as a key factor of human capital development, but does not explore the impact of industry-specific knowledge. Future research could investigate how industry-specific knowledge impactsentrepreneurship and innovation outcomes, and how it interacts with broader human capital development.
9. Investigate the impact of diverse teams: This study does not explore the impact of diversity in entrepreneurship teams. Future research could investigate how diversity (e.g., gender, race, ethnicity) impacts the relationship between human capital development, entrepreneurship, and innovation.
10. Explore the impact of different levels of entrepreneurship: Particular study focuses on individual-level entrepreneurship, but does not explore the impact of firm-level or ecosystem-level entrepreneurship. Future research could investigate how different levels of entrepreneurship impact the relationship between human capital development, entrepreneurship, and innovation.
11. Investigate the impact of the gig economy: The study does not explore the impact of the gig economy on entrepreneurship and innovation outcomes. Future research could investigate how the gig economy impacts the development of human capital, as well as the relationship between human capital development, entrepreneurship, and innovation.
12. This study emphasizes the value of entrepreneurship in driving innovation. Future research could investigate how different forms of entrepreneurship (e.g., social entrepreneurship, high-growth entrepreneurship) impact innovation outcomes, and explore the conditions under which entrepreneurship is most effective in driving innovation.

Conclusion and Final Thoughts:

The conclusion and final thoughts section of this study serves as a summary of the key findings and their implications. In this study, the relationship between human capital development and entrepreneurship is explored, specifically in the context of youth. Through analysis, it has been found that there is a significant correlation between human capital development through skill, education, and competency and entrepreneurship. By investing in these areas, young individuals can become better equipped to start and run their own businesses. Moreover, finding also discovered that human capital development is a critical factor in promoting innovation. Entrepreneurs who possess high levels of human capital are more likely to generate and implement new and innovative ideas. In this way, entrepreneurship acts as a vehicle for innovation, driving economic growth and development.

Further, study's results also have important implications for policymakers and practitioners. It emphasizes the need to prioritize and invest in human capital development to promote entrepreneurship and drive innovation, particularly for young people. Policies and initiatives should be developed that support and encourage individuals to acquire skills and knowledge necessary for entrepreneurship. By investing in education and training programs, governments can help in creating an environment that fosters entrepreneurship and innovation, ultimately leading to positive economic and social outcomes. This will not only promote economic growth and development but also help address

youth unemployment, a significant challenge in nation and its states.

In addition to this, the study suggests that further research is needed to explore the complex relationship between human capital development, entrepreneurship, and innovation. Additional studies can help policymakers and practitioners better understand the mechanisms through which human capital development influences entrepreneurship and identify best practices for promoting it. Overall, this study provides important insights into the role of human capital development in entrepreneurship and framing a way towards innovation and has practical implications for policymakers, practitioners, and future research in the field. Lastly, findings demonstrate that human capital development is a crucial component in thepromotion of entrepreneurship and innovation, particularly among young people. By prioritizing these areas, individuals, communities, and societies can benefit from increased economic growth and development.

References:

1. Acs, Z.J., Arenius, P., Hay, M. & Minniti, M. (2005). Global Entrepreneurship Monitor–2004 Summary Report (Eds.) Babson College & London Business School.
2. Acs, Z.J., Braunerhjelm, P., Audretsch, D. B., & Carlsson, B. (2009). The knowledge spillover theory of entrepreneurship. Small Business Economics, 32, 15-30.
3. Agu, A. O. (2021). Human capital development and organizational performance: an evidence from Nigeria breweries plc. Asian Journal of Current Research, 6(4), 5-19.
4. Alpkan, L., Bulut, C., Gunday, G., Ulusoy, G. & Kilic, K. (2010). Organizational support for intrapreneurship and its interaction with human capital to enhance innovative performance. Management decision, 48(5), 732-755.
5. Audretsch, D., & Thurik, R. (2001). Linking Entrepreneurship to Growth.
6. Audretsch, D. B., & Keilbach, M. (2004). Entrepreneurship and regional growth: an evolutionary interpretation. Journal of Evolutionary Economics, 14, 605-616.
7. Awang, Z. (2015). A Handbook on SEM (2nd Edition). Malaysia.
8. Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. Journal of the Academy of Marketing Science, 16, 74-94.
9. Becker, G.S. (1964). Human capital: A theoretical and empirical analysis, with special reference to education, National Bureau of Economic Research, New York.
10. Becker, G.S. (2009). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. University of Chicago press, Chicago.
11. Bentler, P. M. (1990). Comparative fit indexes in structural models. Psychological Bulletin, 107(2), 238.
12. Bosma, N., Hessels, J., Schutjens, V., Van Praag, M., & Verheul, I. (2012). Entrepreneurship and role models. Journal of Economic Psychology, 33(2), 410-424.
13. Brunnschweiler, C. (2008). Cursing the blessings? Natural resource abundance, institutions, and economic growth. World Development, 36(3), 399-419.
14. Brush, C.G., Greene, P.G. and Hart, M.M. (2001), "From initial idea to unique advantage: the entrepreneurial challenge of constructing a resource base", Academy of Management Executive, Vol. 15, pp. 64-78.
15. Chauhan, K., & Aggarwal, A. (2017). Youth Entrepreneurship: The Role and Implications for the Indian Economy. Amity Journal of Entrepreneurship, 2(2), 1-11.
16. Chitsaz, E., Tajpour, M., Hosseini, E., Khorram, H. & Zorrieh, S. (2019). The Effect of human and social capital on entrepreneurial activities: a case study of Iran and implications, Entrepreneurship and Sustainability, 6(3), 1393-1403.Chitsaz, E., Liang, D., & Khoshsoroor, S. (2017). The impact of resource configuration on Iranian technology venture performance. Technological Forecasting and Social Change, 122, 186-195.
17. Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. Journal of Business Venturing, 18(3), 301-331.
18. Estrin, S., Mickiewicz, T., & Stephan, U. (2013). Entrepreneurship, social capital, and institutions: Social and commercial

entrepreneurship across nations. Entrepreneurship Theory and Practice, 37(3), 479-504.
19. Estrin, S., Mickiewicz, T., & Stephan, U. (2016). Human capital in social and commercial entrepreneurship. Journal of Business Venturing, 31(4), 449-467,
20. Fairle, W. R. & Robb, A. M., (2008). Gender Differences in Business Performance: Evidence from the Characteristics of Business Owners Survey. IZA DP, No. 3718.
21. Giampaoli, D., Ciambotti, M., & Bontis, N. (2017). Knowledge management, problem solving and performance in top Italian firms. Journal of Knowledge Management, 21(2), 355- 375.
22. Hair Jr., J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate data analysis: A global perspective (7th ed.). New Jersey: Pearson Education.
23. Hair, J.F., Jr., Hult, G.T.M., Ringle, C. and Sarstedt, M. (2016), A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), Sage publications.
24. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43, 115-135.
25. Hindle, K., Klyver, K., & Jennings, D. F. (2009). An "informed" intent model: Incorporating human capital, social capital, and gender variables into the theoretical model of entrepreneurial intentions. In Understanding the entrepreneurial mind (pp. 35-50). Springer New York.
26. Hormiga, E., Batista-Canino, R.M. & Sanchez-Medina, A. (2011). The role of intellectual capital in the success of new ventures. The International Entrepreneurship and Management Journal, 7 (1), 71-92.
27. Hosseinpour, D, Abdollahi, M, (2015). The Impact of Human Capital on the Incidence of Entrepreneurial Behavior, Management Studies, 24(78), 126-109.
28. Huang, B., Zhang, J., & Li, X. (2022). Construction of Mega Individuals Competency Model in Business Environment: A Grounded Theory Approach. Sustainability, 14(15), 9248. Retrieved from https://www.mdpi.com/2071-1050/14/15/9248
29. Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. Psychological Methods, 3(4), 424.
30. Kautonen, T., Van Gelderen, M., & Tornikoski, E. T. (2013). Predicting entrepreneurial behaviour: a test of the theory of planned behaviour. Applied Economics, 45(6), 697-707.
31. Khayinga, C. M., & Muathe, S. (2018). Human Capital Development and organizational performance: review & critique of literature and A research agenda. International journal for innovation education and research, 6(2), 144-153.Kourilsky, M. L., Walstad, W. B., & Thomas, A. (2007). The entrepreneur in youth: An untapped resource for economic growth, social entrepreneurship, and education: Edward Elgar Publishing.
32. Kwaku, A.G. & Ko, A. (2001). An empirical investigation of the effect of market orientation and entrepreneurial orientation: alignment on product innovation, Organization Science, 12 (1), 54-74.
33. Kwon, D.-B. (2009). Human capital and its measurement. Paper presented at the The 3rd OECD world forum on "statistics, knowledge and policy" charting progress, building visions, improving life. Busan, OECD World Forum, Korea.
34. Landström, H., Harirchi, G. and Åström, F. (2012). Entrepreneurship: Exploring the knowledge base. Research Policy. Elsevier B.V., 41(7), 1154–1181.
35. Makhdoom, H. R., Cai Li, & Asim, S. (2019). Diffusion of innovation through individual and collective entrepreneurship: An empirical investigation in SMEs. Asia Pacific Journal of Innovation and Entrepreneurship.
36. Mardikaningsih, R., Azizah, E. I., Putri, N. N., Alfan, M. N., & Rudiansyah, M. M. D. H. (2022). Business Survival: Competence of Micro, Small and Medium Enterprises. Journal of Social Science Studies (JOS3), 2(1), 1-4.
37. Marsh, H. W., & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First-and

higher order factor models and their invariance across groups. Psychological Bulletin, 97(3), 562-582.
38. Minniti, M., & Naudé, W. (2010). What do we know about the patterns and determinants of female entrepreneurship across countries?. The European Journal of Development Research, 22, 277-293.
39. Mizser, C., Garai-Fodor, M., & Csiszárik-Kocsir, Á. (2022). Key competences of young entrepreneurs in the world of digitalisation based on the results of a Hungarian questionnaire research. Paper presented at the 2022 IEEE 10th Jubilee International Conference on Computational Cybernetics and Cyber-Medical Systems (ICCC).
40. Mubarik, M. S. (2015). Human capital and performance of small & medium manufacturing enterprises: a study of Pakistan (Doctoral dissertation, University of Malaya).
41. Nunnally, J.C., and Bernstein, I.H. (1994). Psychometric Theory, Third Edition McGraw- Hill, New York.
42. Nwanaka, C., & Amaehule, S. (2011). Skills acquisition: Imperative for business studies educators among secondary schools in rivers state. Mediterranean Journal of Social Sciences, 2(7), 37-43.
43. Patel, K. (2010). Understanding the influence of family context on entrepreneurial characteristics (Doctoral dissertation, University of Pretoria).Ployhart, R. E., & Moliterno, T. P. (2011). Emergence of the human capital resource: A multilevel model. Academy of Management Review, 36(1), 127-150.
44. Prabhu, J., & Jain, S. (2015). Reverse innovation: A systematic literature review. Management Decision, 53(2), 316-342.
45. Rauch, A., & Hulsink, W. (2015). Putting entrepreneurship education where the intention to act lies: An investigation into the impact of entrepreneurship education on entrepreneurial behavior. Academy of Management Learning & Education, 14(2), 187-204.
46. Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. Academy of Management Review, 25(1), 217-226.
47. Shepherd, D. A., Covin, G, F., & Kuratko F. D. (2008). Project failure from corporate entrepreneurship: Managing the Grief process. Journal of Business Venturing, 24(6), 588- 600.
48. Stam, E., & Van Stel, A. (2011). Types of entrepreneurship and economic growth. Entrepreneurship, Innovation, and Economic Development, 78-95.
49. Stenholm, P., Acs, Z. J., & Wuebker, R. (2013). Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity. Journal of Business Venturing, 28(1), 176-193.
50. Teece, D. J. (2011). Human capital, capabilities, and the firm: Literati, numerati, and entrepreneurs in the twenty-first-century enterprise. In Burton-Jones, A., and Spender, J. C. (Eds.), The Oxford Handbook of Human Capital (pp. -). Oxford: Oxford University Press (OUP).
51. Ucbasaran, D., Westhead, P., & Wright, M. (2008). Opportunity identification and pursuit: does an entrepreneur's human capital matter? Small Business Economics, 30, 153-173.
52. Unger, J. M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. Journal of Business Venturing, 26(3), 341- 358.
53. Yasin, N. A., Ridjal, S., & Jufri, M. (2019). Human capital and entrepreneurship and their impact on the productivity of traditional craftsmen. Revista ESPACIOS, 40(04).
54. Yeoh, K.K. & Mahmood, R. (2013). The relationship between pro-innovation organizational climate, leader-member exchange and innovative work behavior: a study among the knowledge workers of the knowledge intensive business services in Malaysia. Business Management Dynamics, 2(8), 15-30.

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REMISSION OF SENTENCES AND VICTIMS' RIGHTS IN THE INDIAN CRIMINAL JUSTICE SYSTEM: AN EMPERICAL STUDY

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Abstract

The remission of sentences constitutes a significant instrument within the Indian criminal justice system, reflecting the State's commitment to reformative justice and humane punishment. However, its implementation has raised critical concerns regarding transparency, uniformity, and the marginalization of victims' rights. This study adopts a socio-legal and empirical approach to examine the constitutional, historical, and jurisprudential foundations of remission, alongside its practical functioning in India. Based on empirical data collected from 390 stakeholders, the research identifies systemic deficiencies such as executive dominance, lack of uniform policies, and inadequate victim participation. The study argues for a balanced, victim-inclusive remission framework aligned with constitutional morality, public safety, and restorative justice principles.

Key Words: Remission of Sentences; Victims' Rights; Criminal Justice System; Executive Clemency; Reformative Justice; Restorative Justice; Victim Participation; Constitutional Morality; Article 21; Article 14; Criminal Procedure Code; Bharatiya Nagarik Suraksha Sanhita; Judicial Review; Public Safety; Penal Policy; Sentencing Policy; Prison Reforms; Rehabilitation and Reintegration; Victim Impact Statements; Transparency and Accountability; Socio-Legal Research; Empirical Legal Studies; Criminal Justice Reform; India.

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1. Introduction

Crime in modern societies is a socially constructed phenomenon shaped by evolving moral and legal norms. The Indian criminal justice system operates through a tripartite relationship between the State, the offender, and the victim. While the offender violates legal norms and the victim suffers harm, the State bears the responsibility of ensuring justice, fairness, and social order.

The remission of sentences represents a key mechanism through which the State balances punitive and reformative objectives. It is constitutionally recognized under Articles 72 and 161 of the Constitution of India[1] and statutorily governed by Sections 432–435 of the Code of Criminal Procedure, 1973[2] and corresponding provisions under the Bharatiya Nagarik Suraksha Sanhita, 2023[3].

Although remission promotes rehabilitation and reintegration, its application—especially in serious offences—has raised concerns regarding arbitrariness, political misuse, and exclusion of victims. This study addresses the central research problem: the absence of a victim-centric framework in remission decisions.

2. Historical and Jurisprudential Foundations

The concept of remission in India has deep civilizational roots. Ancient Indian jurisprudence harmonized punishment (*daṇḍa*) with forgiveness (*kṣamā*), emphasizing moral accountability and sensitivity to victims' suffering. The Constitution institutionalized this tradition through executive clemency powers while subjecting them to the rule of law.

Judicial precedents have clarified that remission powers are not absolute and are subject to limited judicial review[4]. However, modern remission practice remains largely state-centric and offender-oriented, often excluding victims from meaningful participation.

3. Literature Review

3.1 Doctrinal Evolution

Remission originated as a colonial administrative tool and later evolved into a constitutional power governed by statutory safeguards. Judicial decisions such as *Maru Ram v. Union of India*[5], *Kehar Singh v. Union of India*[6], Epuru Sudhakar v. Government of A.P.[7], and *Union of India v. V. Sriharan*[8] have emphasized constitutional limitations on clemency powers.

3.2 Theoretical Perspectives

Scholars justify remission primarily through reformative theory, viewing it as an incentive for rehabilitation[9]. However, retributive theorists critique it for undermining proportional punishment[10], while restorative justice advocates emphasize victim participation[11].

3.3 Comparative Insights

Comparative jurisdictions such as the United Kingdom and the United States provide more structured frameworks for remission and parole, including victim participation mechanisms[12].

3.4 Research Gap

Existing literature remains largely offender-centric and lacks empirical and victim-focused analysis, particularly in the Indian context.

4. Research Methodology

The study adopts a **mixed-method socio-legal approach**:

- **Doctrinal Analysis**: Constitutional provisions, statutes, and case law
- **Empirical Study**: Survey of 390 respondents across Bihar and Jharkhand

Statistical tools:

- Chi-square tests
- Proportion analysis
- Frequency distribution

5. Empirical Findings

5.1 Respondent Profile

The empirical component of the study is based on responses collected from a diverse group of 390 participants representing key stakeholders within the criminal justice system. The composition of respondents reflects a balanced mix of professional expertise and lived experiences, thereby enhancing the credibility and depth of the findings. Legal professionals, including advocates and academicians, constituted the largest segment, accounting for nearly half of the respondents. Their substantial representation ensured a strong doctrinal and interpretative perspective within the dataset. Human rights activists, public prosecutors, victims and their families, as well as officials from police, prison, and judicial institutions, also formed significant portions of the sample, contributing varied institutional and experiential insights.

The distribution of respondents is presented below:

Category	Percentage
Legal Professionals	46.9%
Human Rights Activists	13.8%
Public Prosecutors	11.0%
Victims/Families	10.8%
Officials	12.0%

This diverse representation ensured that the study captured both normative legal perspectives and ground-level realities, particularly in relation to the functioning of remission policies and their impact on victims and society.

5.2 Key Findings

The empirical findings reveal a nuanced and somewhat paradoxical perception of the remission framework in India. On the one hand, a majority of respondents acknowledge the theoretical legitimacy and reformative potential of remission. Approximately 60.5 percent of respondents agreed that remission plays a constructive role in promoting rehabilitation and reintegration of offenders into society. This indicates continued faith in the reformative philosophy underlying modern penology.

However, this normative acceptance is accompanied by strong concerns regarding the manner in which remission is implemented in practice. An overwhelming 92.8 percent of respondents pointed to the absence of uniform remission policies across different states. This inconsistency creates disparities in the treatment of similarly situated prisoners and undermines the constitutional principle of equality before the law.

Further, 66.4 percent of respondents expressed the perception that remission decisions are susceptible to political or personal misuse. This finding raises serious concerns regarding the integrity and impartiality of the decision-making process. The perception of executive overreach or influence weakens public confidence in the fairness of criminal justice administration.

Importantly, the empirical data demonstrate a strong consensus on the need to reform the remission process to include victims' perspectives. A significant 78.2 percent of respondents supported the introduction of mandatory victim consultation mechanisms prior to the grant of remission. This reflects an emerging shift toward recognizing victims as active stakeholders rather than passive observers in the criminal justice process.

5.3 Victim-Centric Concerns

One of the most striking findings of the study relates to the experiences and concerns of victims within the remission framework. A majority of respondents highlighted that remission decisions often fail to adequately consider the psychological and emotional impact on victims and their families. Approximately 54.9 percent of respondents reported that remission can cause psychological distress to victims, particularly in cases involving serious offences. The premature release of offenders may revive trauma, generate fear of retaliation, and create a sense of insecurity.

In addition to individual harm, the exclusion of victims from remission decisions has broader societal implications. Nearly 69.5 percent of respondents believed that ignoring victims' perspectives contributes to societal dissatisfaction and undermines public trust in the justice system. This indicates that victim marginalization is not merely a private grievance but a systemic issue affecting the legitimacy of criminal justice institutions.

These findings underscore the urgent need to incorporate victim-centric safeguards into remission policies, thereby aligning them with principles of restorative justice and constitutional dignity.

6. Hypothesis Testing

The empirical data were subjected to rigorous statistical analysis to evaluate the research hypotheses. The results are summarized below:

Hypothesis	Result
Lack of transparency & uniformity	Accepted
Victim marginalization	Accepted
Ineffective implementation	Accepted

The statistical tests yielded a high level of significance ($p < 0.001$), indicating that the observed patterns in the data are not due to chance but reflect consistent and meaningful trends.

The acceptance of the first hypothesis confirms that remission policies in India are perceived as non-uniform, lacking transparency, and vulnerable to misuse. The second hypothesis establishes that victims are systematically marginalized within the remission process. The third hypothesis highlights a critical contradiction: although remission is theoretically aligned with reformative justice, its implementation fails to achieve its intended objectives and raises concerns regarding public safety.

7. Discussion

The findings of the study reveal a deep structural imbalance within the remission framework in India. While remission is normatively justified as a reformative and humanitarian mechanism, its operational reality presents significant challenges. The coexistence of theoretical legitimacy and practical deficiencies creates a tension that undermines the effectiveness of the system.

A central issue identified is the marginalization of victims. Despite the evolving jurisprudence recognizing victims' rights, remission practices continue to treat victims as peripheral to the decision-making process. This exclusion not only affects victims' psychological well-being but also weakens the moral foundation of criminal justice.

Another critical concern is the lack of accountability in the exercise of executive discretion. The perception that remission decisions may be influenced by political or extraneous considerations raises serious constitutional questions. The absence of transparent procedures and reasoned decision-making further exacerbates these concerns.

Taken together, these factors contribute to a broader legitimacy crisis within the criminal justice system. When remission is perceived as arbitrary or insensitive to victims' suffering, it risks eroding public trust and undermining the credibility of legal institutions.

8. Policy Implications

The study highlights the urgent need for comprehensive reforms to address the identified deficiencies in the remission framework. A reformed system must prioritize transparency and accountability in decision-making processes. This includes the requirement of reasoned orders, clearly defined criteria, and accessible procedural guidelines.

Equally important is the integration of victim participation into remission decisions. Recognizing victims as stakeholders would enhance procedural fairness and align the system with constitutional principles of dignity and justice.

At the same time, reforms must ensure that the rehabilitative objectives of remission are not compromised. A balanced approach is required, one that harmonizes offender rehabilitation with public safety considerations. This balance is essential for maintaining both the humanitarian and protective functions of criminal justice.

9. Key Policy Recommendations

In light of the empirical findings and normative analysis, the study proposes several key reforms aimed at strengthening the remission framework. These include the development of a national policy to ensure uniformity across states, the establishment of independent review bodies to enhance objectivity, and the introduction of structured mechanisms for victim participation.

Further recommendations emphasize the importance of transparency through reasoned decisions, the use of scientific risk assessment tools to evaluate the likelihood of reoffending, and the incorporation of judicial consultation in serious cases. The study also underscores the need to link remission with rehabilitation programs and to establish post-release monitoring systems to ensure successful reintegration and public safety.

Collectively, these measures aim to transform remission from a discretionary executive privilege into a structured, accountable, and participatory process.

10. Conclusion

The remission of sentences represents one of the most complex and nuanced aspects of criminal justice, requiring a delicate balance between compassion and accountability. While the concept of remission embodies the reformative ideals of punishment, its current implementation reveals significant shortcomings that undermine its legitimacy.

The findings of this study demonstrate that the exclusion of victims, lack of transparency, and perceived misuse of discretion have weakened public confidence in the remission system. Addressing these challenges requires a fundamental shift toward a more inclusive and accountable framework.

A victim-inclusive, transparent, and constitutionally grounded remission system is not only desirable but necessary. Such a framework would ensure that mercy operates in harmony with justice, thereby strengthening the moral and institutional foundations of the criminal justice system.

Footnotes

1. INDIA CONST. arts. 72, 161.
2. Code of Criminal Procedure, No. 2 of 1974, §§ 432–435 (India).
3. Bharatiya Nagarik Suraksha Sanhita, 2023, §§ 473–475 (India).
4. See *Epuru Sudhakar v. Gov't of A.P.*, (2006) 8 S.C.C. 161 (India).
5. *Maru Ram v. Union of India*, (1981) 1 S.C.C. 107 (India).
6. *Kehar Singh v. Union of India*, (1989) 1 S.C.C. 204 (India).
7. *Epuru Sudhakar v. Gov't of A.P.*, (2006) 8 S.C.C. 161 (India).
8. *Union of India v. V. Sriharan*, (2016) 7 S.C.C. 1 (India).
9. JEREMY BENTHAM, *AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION* (1789).
10. IMMANUEL KANT, *THE METAPHYSICS OF MORALS* (1797).
11. HOWARD ZEHR, *THE LITTLE BOOK OF RESTORATIVE JUSTICE* (2002).
12. See Crime Victims' Rights Act, 18 U.S.C. § 3771 (2004).
13. *State of Haryana v. Jagdish*, (2010) 4 S.C.C. 216 (India); *Rekha Murarka v. State of Maharashtra*, (2020) 2 S.C.C. 474 (India); *Bilkis Yakub Rasool v. Union of India*, (2024) SCC OnLine SC (India).

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LEARNERS' EXPERIENCES WITH THE LEARNING MANAGEMENT SYSTEM IN IGNOU'S OPEN AND DISTANCE LEARNING FRAMEWORK: A CASE STUDY OF THE ONLINE MBA PROGRAMME AT REGIONAL CENTRE DEOGHAR, JHARKHAND

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Abstract

The present study examines the functioning of the Learning Management System (LMS) within the Open and Distance Learning (ODL) framework of the Indira Gandhi National Open University (IGNOU), with specific reference to learners enrolled in the Online MBA (MBAOL) programme under IGNOU Regional Centre, Deoghar, Jharkhand. The study investigates learners' strategies, advantages of the ODL system, challenges faced by learners, and the usability of the LMS platform used for programme delivery.

Keywords: Open and Distance Learning (ODL), Learning Management System (LMS), IGNOU, MBAOL programme, digital readiness, self-directed learning strategies, learner challenges, digital divide

1. Introduction

The expansion of higher education in India has increased enrolment opportunities; however, several challenges such as limited institutional capacity, geographical disparities, financial constraints, and infrastructural limitations continue to restrict access to conventional higher education. In this context, Open and Distance Learning (ODL) has emerged as a viable alternative to expand educational opportunities for diverse groups of learners.

1.1 Development of ODL in India

Distance education in India evolved from correspondence-based instruction to a technology-enabled learner-centred system. A significant milestone in this transformation was the establishment of Indira Gandhi National Open University (IGNOU) in 1985, which institutionalized open learning and significantly expanded higher education access across the country. IGNOU operates through an extensive network of regional and learner support centres, enabling access to higher education for geographically dispersed and socially disadvantaged populations. Over time, the university has integrated Information and Communication Technology (ICT) tools such as Learning Management Systems, digital repositories, online counselling, and virtual classrooms to enhance the effectiveness of its ODL programmes.

1.2 Emergence of Online Learning and LMS

The integration of digital technologies has transformed traditional distance education into an interactive and technology-supported

learning environment. The COVID-19 pandemic further accelerated the adoption of online education systems, prompting many institutions to introduce fully online programmes. IGNOU introduced several online programmes including the Online Master of Business Administration (MBAOL). These programmes rely primarily on a centralized Learning Management System (IOPLMS) which facilitates course delivery, communication, assessment, and learner support. In such programmes, the LMS acts as the central academic platform connecting learners, instructors, and educational resources.

1.3 Regional Context of the Study

The study focuses on learners associated with IGNOU Regional Centre, Deoghar (Jharkhand). This regional context is particularly significant because several areas served by the centre face challenges related to digital infrastructure, internet connectivity, and socio-economic disparities. These contextual factors influence learners' ability to effectively access and utilize LMS-based online learning systems.

2. Review of Literature

The review of literature indicates that distance learning systems have evolved significantly with the integration of digital technologies such as Learning Management Systems, video conferencing platforms, and virtual learning environments. Research suggests that when supported by effective instructional design and technological infrastructure, online learning can achieve learning outcomes comparable to conventional education (Rao, 2020).

The literature identifies several advantages of ODL, including flexibility, accessibility, affordability, and opportunities for lifelong learning. It has particularly benefited working professionals, women, and learners from disadvantaged backgrounds (Pesala & Hemamalini, 2025).

However, the literature also highlights several challenges, such as the digital divide, limited internet connectivity, insufficient technological skills, lack of learner motivation, and difficulties in maintaining effective interaction in online environments. In developing countries like India, these challenges are often intensified by infrastructural and socio-economic disparities (Nayak & Alam, 2022; Ashuni, 2024). Studies also indicate significant regional variation in the effectiveness of ODL systems in India. States with better digital infrastructure show higher participation and success in ODL programmes, whereas regions with limited technological resources face difficulties in fully utilizing online education (Kant, 2021).

3. Research Gap

The review of existing literature reveals that much of the research on ODL in India focuses on institutional development and policy frameworks, while comparatively fewer studies examine learner-centred experiences in fully online programmes. In particular, limited empirical research exists on learning strategies adopted by ODL learners, challenges faced by learners in LMS-based environments, effectiveness of fully online programmes such as MBAOL, and region-specific experiences of learners in areas with limited digital infrastructure such as Jharkhand. Therefore, a detailed investigation of learners' experiences with LMS-based online learning within the IGNOU ODL system was considered necessary.

4. Objectives of the Study

The study was conducted with the following objectives:

1. To examine the learning strategies adopted by ODL learners.
2. To analyze the advantages of the IGNOU ODL system.
3. To identify the problems and challenges faced by learners in the ODL system.
4. To evaluate the structure, usability, and effectiveness of the Learning Management System used in the MBAOL programme.

5. Research Methodology

The study adopted a descriptive–analytical research design supported by a mixed-methods approach. Both quantitative and qualitative techniques were used to obtain a comprehensive understanding of learner experiences. The research was empirical, exploratory, and evaluative in nature. Primary data were collected from learners enrolled in the MBAOL programme under IGNOU Regional Centre, Deoghar.

Sample: The study population consisted of MBAOL learners registered at the Deoghar Regional Centre. A representative sample of learners was selected using non-probability sampling techniques, particularly purposive sampling and convenience sampling (N=159).

Tools for Data Collection:

- Structured Questionnaire (covering demographic characteristics, digital readiness, learning strategies, advantages of ODL, LMS usability, learner challenges, and overall satisfaction). Responses were measured using a five-point Likert scale.
- Semi-structured Interviews (focusing on learner experiences, technological difficulties, and regional constraints).

Reliability and Validity: The instruments were tested through a pilot study. Content validity was ensured through expert review, and reliability was assessed using Cronbach's Alpha.

Data Analysis: Data were analysed using SPSS software. Both descriptive and inferential statistical techniques were employed, including frequency and percentage, mean and standard deviation, one-sample t-tests, correlation analysis, and regression analysis.

6. Survey Findings

6.1 Demographic Profile of Respondents

The demographic analysis provides a foundational context for interpreting learner experiences with the Learning Management System (LMS) within the Open and Distance Learning (ODL) framework of Indira Gandhi National Open University. The study, based on 159 MBAOL learners from the Regional Centre Deoghar, reflects a diverse, mature, and professionally heterogeneous learner population, which is characteristic of ODL systems in India.

The near-balanced gender distribution highlights the inclusive nature of the programme, suggesting that LMS-enabled ODL provides equitable access to both male and female learners. A significant proportion of respondents belong to middle-aged and senior age groups, indicating the programme's strong appeal among adult and mid-career learners seeking flexibility and career advancement.

Social category representation further reflects the institution's commitment to equity and inclusion, with notable participation from OBC and Scheduled Tribe learners. The diversity in educational backgrounds and employment status confirms that the MBAOL programme caters to both upskilling and re-skilling needs.

Importantly, the majority of learners access the LMS through smartphones. While this reflects current digital trends, it also explains certain usability constraints and technical challenges, particularly in regions with limited digital infrastructure.

6.1.1 Integrated Analysis of Digital Readiness, Learning Strategies, and Advantages of ODL

The combined analysis of digital readiness, learning strategies, and perceived advantages reveals a structural paradox at the core of the ODL experience. On one hand, the system is widely perceived as flexible, accessible, cost-effective, and academically supportive. On the other hand, learners' ability to fully utilize these benefits is constrained by infrastructural limitations, digital access disparities, and institutional support gaps, especially in semi-urban and semi-tribal contexts such as Deoghar.

Digital readiness emerges as structurally constrained rather than individually deficient. Issues such as unstable internet connectivity,

limited LMS navigation skills, and delayed technical support create an environment of digital uncertainty. These factors collectively affect learner confidence and engagement.

Despite these constraints, learners demonstrate adaptive and self-regulated learning behaviours. Strong evidence is observed in self-monitoring, content revision, and help-seeking practices. However, strategic dimensions such as goal-setting, collaborative learning, and systematic planning remain underdeveloped, indicating limited institutional scaffolding.

At the same time, the advantages of ODL are almost universally endorsed. Flexibility in time and pace, affordability, continuity of education alongside employment, accessibility of LMS resources, and effective academic support systems strongly validate the learner-centred design of the ODL model.

Table 6.1: Perceived Advantages of ODL (Converted from Graph)

Dimension	Agree (%)	Fully Agree (%)	Interpretation
Time Flexibility	High	Very High	Strong acceptance of flexible schedules
Self-Paced Learning	High	Very High	High learner autonomy
Cost-Effectiveness	Very High	Very High	Most strongly endorsed advantage
LMS Accessibility	Very High	Very High	Easy and continuous access
Academic Support	High	Very High	Effective support mechanisms
Overall Learning Needs Fulfilled	High	Very High	Comprehensive satisfaction

6.1.2 LMS Structure, Usability, Learner Challenges, and Overall Satisfaction

LMS Structure, Functionality, and Usability

The findings indicate a high level of learner satisfaction with the LMS design and functionality. Most respondents perceived the platform as user-friendly, well-organized, and easy to navigate. The structured presentation of course content supports self-paced learning, while multimedia components such as video lectures enhance conceptual clarity.

Administrative features—including assignment submission, notifications, announcements, and feedback—are highly valued. Furthermore, the LMS facilitates effective interaction between learners and instructors, contributing positively to academic engagement and outcomes.

Learner Challenges

Despite the strengths of the LMS, learners face several significant challenges. Emotional factors such as isolation and the absence of face-to-face interaction negatively affect motivation. Time management is a major concern, particularly for working professionals balancing multiple responsibilities.

Technical challenges, especially unstable internet connectivity and system-related issues, emerge as the most critical barriers. Additionally, interaction gaps, delayed responses, language complexity, and stress associated with online examinations further complicate the learning experience.

Overall Satisfaction

Notwithstanding these challenges, overall learner satisfaction remains exceptionally high. Nearly all respondents expressed satisfaction with the LMS-based MBAOL programme and indicated a strong willingness to recommend it to others. This reflects a high level of trust in the system and recognition of its value.

Table 6.2: LMS Usability, Challenges, and Satisfaction (Converted from Graph)

Dimension	Agree (%)	Fully Agree (%)	Interpretation
LMS Usability & Navigation	High	Very High	User-friendly and efficient
Content & Multimedia Quality	High	High	Enhances understanding
Interaction (Peer & Instructor)	Moderate	High	Effective but improvable
Technical Challenges	High	Moderate	Major barrier
Motivation & Engagement Issues	High	Moderate	Affected by isolation
Overall Satisfaction	Very High	Very High	Strong endorsement
Programme Recommendation	Very High	Very High	High perceived value

Table 6.3: Integrated Summary of Key Findings

Study Dimension	Overall Trend	Key Insight
Advantages of ODL	Very High Agreement	Confirms inclusivity and effectiveness
LMS Usability	High Agreement	Supports engagement and learning
Learner Challenges	Moderate to High	Requires targeted interventions
Overall Satisfaction	Very High	Reflects strong learner trust

6.2 Conclusion on Hypothesis Testing

The empirical findings support all four hypotheses of the study:

- **H1:** Learners employ identifiable self-directed learning strategies, indicating functional self-regulation.
- **H2:** The ODL system offers significant advantages in flexibility, accessibility, and learner support.
- **H3:** Learners face substantial challenges across technological, motivational, and interactional dimensions.
- **H4:** The LMS has a significant positive impact on learner engagement and perceived learning outcomes.

6.3 Overall Conclusion of Survey Findings

The survey findings confirm that the MBAOL programme of Indira Gandhi National Open University effectively operationalizes the principles of ODL by providing a flexible, accessible, and learner-centred educational environment. The LMS serves as a critical enabler of learning, supporting academic engagement, continuity, and performance.

However, the effectiveness of the system is moderated by contextual challenges, particularly those related to digital infrastructure, interactional limitations, and learner support mechanisms. The findings highlight that the success of ODL is not solely dependent on system design but on the alignment between technological infrastructure, pedagogic strategies, and institutional responsiveness.

Overall, the ODL model demonstrates strong potential for inclusive higher education, provided that continuous improvements are made in digital readiness, infrastructure, and learner support systems.

Table 6.4 : Summary of Objectives, Key Findings, Implications, and Recommendations

(Adapted and synthesized from study data)

Research Objective	Key Findings	Academic / Practical Implications	Policy / Institutional Recommendations
Digital Readiness & Access	Formal LMS access exists, but is constrained by unstable connectivity and limited digital confidence among learners	Highlights the critical distinction between mere access and functional digital readiness	Introduce mandatory digital induction programmes; design low-bandwidth compatible LMS platforms
Learning Strategies	Adaptive, self-directed learning strategies are dominant; however, structured strategic planning remains underdeveloped	Learner autonomy is contingent upon institutional scaffolding and guided support systems	Develop guided learning frameworks and strengthen mentoring mechanisms
Advantages of ODL	Strong endorsement of flexibility, affordability, and academic support systems	Reinforces the effectiveness and inclusivity of the ODL model	Expand public ODL infrastructure and integrate hybrid support mechanisms
LMS Usability & Challenges	LMS platforms receive high usability ratings, yet learners face multidimensional challenges (technical, pedagogical, and engagement-related)	Indicates that LMS effectiveness requires continuous refinement and contextual adaptation	Enhance technical helpdesks, improve platform interactivity, and ensure continuous system upgrades

Table6.5 : Theoretical Contributions

(Based on region-specific empirical evidence from semi-urban Jharkhand contexts)

Theoretical Framework	Core Proposition	Empirical Contribution of the Study	Theoretical Advancement
ODL Theory (Open and Distance Learning)	Education can be delivered effectively beyond traditional classrooms through flexible, learner-centered systems	Confirms that ODL is operationally viable in semi-urban contexts, despite infrastructural constraints	Extends ODL theory by integrating context-sensitive challenges such as connectivity and learner preparedness
Digital Divide Theory	Inequality in access to digital resources creates disparities in learning outcomes	Reveals that digital inequality is not limited to access but includes skills, confidence, and usage patterns	Advances the theory from "access divide" to "capability and usage divide" in semi-urban settings
Self-Directed Learning Theory	Learners take initiative in diagnosing, planning, and evaluating their learning	Shows that learners adopt adaptive strategies but lack structured planning and institutional guidance	Refines the theory by emphasizing the role of institutional scaffolding in enabling effective self-direction

Technology Acceptance Model (TAM)	User acceptance of technology depends on perceived usefulness and ease of use	High LMS usability ratings indicate acceptance, but persistent challenges affect sustained engagement	Expands TAM by incorporating contextual barriers such as connectivity and digital literacy
Inclusive Education Framework	Education systems should ensure equitable access and participation for all learners	Demonstrates that ODL enhances inclusion through affordability and flexibility, yet disparities remain	Strengthens the framework by highlighting the need for digital inclusivity alongside physical and social inclusion

8. **Suggestions and Recommendations**

The findings of the study underscore the urgent need for a structured and multi-dimensional reform approach within Open and Distance Learning (ODL) systems, particularly in semi-urban and resource-constrained contexts. A key recommendation emerging from the analysis is the introduction of mandatory digital orientation programmes for newly enrolled learners. Such programmes would equip students with essential digital skills, familiarize them with Learning Management Systems (LMS), and enhance their confidence in navigating online learning environments.

In addition to learner preparedness, the study highlights the importance of context-sensitive LMS design. Platforms must be optimized for low-bandwidth conditions and mobile accessibility, ensuring that technological barriers do not exclude learners from effective participation. Complementing this, the provision of offline and downloadable learning resources becomes crucial, especially in regions with intermittent internet connectivity, enabling continuity in learning.

The role of institutional support systems is equally significant. Establishing 24/7 technical helpdesks, along with region-specific support coordinators, can substantially reduce learner frustration and improve system usability. Parallelly, strengthened academic mentoring mechanisms and regular interactive virtual sessions can bridge the gap between instructors and learners, fostering a more engaging and supportive academic environment.

To further enhance learner engagement, institutions should integrate multimedia content and collaborative tools into their pedagogical practices. These tools not only make learning more interactive but also encourage peer-to-peer engagement and active participation. Expanding community-based digital learning hubs can also serve as a vital intervention, particularly for learners who lack access to personal digital infrastructure.

Continuous improvement of digital platforms is another critical area. Institutions must conduct periodic LMS usability evaluations to identify challenges and implement timely upgrades. Additionally, faculty training in online pedagogy is essential to ensure that educators are well-equipped to deliver effective and engaging digital instruction.

Finally, the study strongly advocates for inclusive policy frameworks that address the needs of marginalized learners. This includes the provision of multilingual learning resources, financial assistance, and targeted support mechanisms to ensure equitable access and participation in ODL systems.

9. Practical Implications for ODL Institutions and Higher Education Policy

The study offers significant practical insights for ODL institutions and policymakers. It emphasizes the necessity of structured digital capacity building as a foundational requirement for effective online education. Without adequate digital literacy among learners and faculty, even the most advanced technological systems may fail to deliver desired outcomes.

Furthermore, the research highlights the importance of context-sensitive LMS design, tailored to the infrastructural realities of semi-urban and rural regions. Institutions must move beyond a one-size-fits-all approach and adopt flexible, adaptive systems that cater to diverse learner needs.

The study also underscores the critical role of robust technical and academic support systems in sustaining learner engagement and success. Continuous policy investment in digital infrastructure, including internet accessibility and institutional technological capacity, is essential to fully realize the inclusive potential of ODL. In this regard, the vision outlined in the National Education Policy 2020 aligns closely with the study's recommendations, particularly in promoting digital learning and equitable access to education.

10. Limitations of the Study

While the study provides valuable insights, certain limitations must be acknowledged. The geographical scope is confined to a single regional centre located in Deoghar, which may limit the generalizability of the findings to other regions with different socio-economic and infrastructural conditions. Additionally, the sample is restricted to a specific academic programme, namely MBAOL, thereby narrowing the diversity of learner experiences captured in the study.

The research adopts a cross-sectional design, which restricts the ability to analyze changes over time or establish causal relationships. Furthermore, the reliance on self-reported data introduces the possibility of response bias, as participants' perceptions may not always accurately reflect actual behaviors or outcomes. The study also has limited qualitative depth, which may have constrained a more nuanced understanding of learner experiences.

Another important limitation is the absence of a direct technical evaluation of the LMS architecture. While user perceptions of usability and challenges are examined, the study does not assess the system from a technological or engineering perspective.

11. Directions for Future Research

Building upon the present study, future research can adopt a more comprehensive and comparative approach. Studies across multiple regional centres would help in identifying contextual variations and enhancing the generalizability of findings. Longitudinal research designs could provide deeper insights into learner performance, engagement patterns, and skill development over time.

In addition, incorporating faculty perspectives would offer a more holistic understanding of the ODL ecosystem, particularly in relation to pedagogical challenges and institutional readiness. The integration of emerging technologies such as Artificial Intelligence (AI) and Virtual Reality (VR) into ODL systems presents another promising avenue for research, especially in terms of enhancing personalization and immersive learning experiences.

Finally, there is a need for systematic policy impact evaluations, particularly in the context of reforms introduced under the National Education Policy 2020. Such studies would help assess the effectiveness of policy interventions and guide future strategies for strengthening digital and inclusive education in India.References

References

Ashuni, K. (2024). A qualitative study of distance learners of IGNOU: Examining digital divide and inequality. Asian Journal of Distance Education, 22(1), 45–64. https://asianjde.com

Kant, N. (2021). Selecting an appropriate learning management system in open and distance learning. Journal of Educational Technology Systems. https://doi.org/10.1177/004723952110188

Nayak, K. V., & Alam, S. (2022). The digital divide, gender and education: Challenges for tribal youth in rural Jharkhand during COVID-19. Humanities and Social Sciences Communications, 9, Article 272. https://doi.org/10.1057/s41599-022-01333-5

Pesala, K. S., & Hemamalini, H. C. (2025). A critical study of IGNOU distance learning: Perspectives from graduands. International Journal of Engineering Sciences and Advanced Technology, 25(7), 892–896.

Rao, N. (2020). Envisioning the future of open and distance learning system in India. Association of Indian Universities. https://www.aiu.ac.in/documents/AIU_Publications/Reimagining%20Indian%20Universities

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MENTAL AND PHYSICAL EFFECTS OF PILGRIMAGE: A STUDY OF THE KANWAR YATRA TO BAIDYANATH DHAM

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Abstract

Pilgrimage occupies a profound place in the socio-religious fabric of India, serving as a bridge between ancient spiritual traditions and contemporary human experience. Among the myriad sacred journeys undertaken annually, the Kanwar Yatra stands out as one of the largest and most physically demanding pilgrimages dedicated to Lord Shiva. Devotees, known as Kanwariyas, embark on a grueling trek—spanning approximately 105 kilometers from Sultanganj in Bihar to Baidyanath Dham (Deoghar) in Jharkhand—carrying holy Ganga water in a bamboo yoke (kanwar) while observing strict vows of celibacy, vegetarianism, barefoot walking (or minimal footwear), and continuous chanting of "Bol Bam" or "Har Har Mahadev."

This study adopts an interdisciplinary lens to examine the mental and physical effects of this pilgrimage, integrating insights from psychology, physiology, religious studies, and public health. Drawing primarily on secondary sources—including peer-reviewed literature, expert commentaries, mythological texts, and published pilgrim narratives—and supplemented by thematic insights from in-depth interviews with returning Kanwariyas, the research reveals that the Kanwar Yatra functions as a holistic intervention. Physically, the sustained endurance walking and balanced load-bearing activity appear to enhance cardiovascular fitness, muscular strength, and overall stamina, resembling structured exercise regimens while acting as a form of "compulsive physiotherapy." Mentally, participants describe marked reductions in stress and anxiety, heightened emotional resilience, a deepened sense of purpose, and moments of inner peace attributed to rhythmic chanting, communal bonding, and detachment from daily stressors. Spiritually, the pilgrimage fosters "spiritual coping," enabling devotees to reframe life challenges within a sacred narrative of devotion and surrender.

Yet the journey is not without challenges: dehydration, fatigue, musculoskeletal strain, swollen feet, blisters, and occasional injuries emerge as notable risks, particularly amid monsoon heat, overcrowding, and variable medical support along the route. Socially, the yatra cultivates collective identity and cultural continuity, transcending caste and regional divides through volunteer-run camps that provide food, shelter, and mutual aid. These insights position the Kanwar Yatra not merely as a ritual of faith but as a multidimensional phenomenon with therapeutic potential for mental well-being, physical vitality, and societal cohesion. The study underscores the need for integrated health support systems—expanded medical camps, hydration protocols, and awareness campaigns—to maximize benefits while mitigating harms. Ultimately, pilgrimage emerges as an alternative model of holistic health promotion, where spirituality, physical exertion, and communal experience converge to nurture human flourishing in an increasingly fragmented world.

Keywords: Kanwar Yatra; Pilgrimage; Mental Health; Physical Health; Spirituality; Religious Tourism; Baidyanath Dham; Holistic Well-Being

1. Introduction

In the tapestry of Indian spirituality, pilgrimage has endured for millennia as a sacred rite of passage, a quest for purification, and a tangible expression of bhakti (devotion). Unlike routine religious observance, pilgrimage demands embodiment—body, mind, and soul moving in unison toward the divine. The Kanwar Yatra to Baidyanath Dham exemplifies this fusion. Each Shravan month (July–August), millions of Shiva devotees transform into Kanwariyas, shouldering kanwars filled with Ganga jal sourced from the river's banks at Sultanganj. Their destination is Baidyanath Dham in Deoghar, one of the twelve Jyotirlingas, where legend holds that Lord Shiva himself resides in a self-manifested lingam.

The mythological roots of this yatra intertwine with cosmic narratives. One tale traces it to the Samudra Manthan, when Shiva consumed the deadly Halahala poison; devotees emulate this by offering Ganga water to soothe the deity's throat. Another links it to Lord Rama, who carried Ganga water in a kanwar to worship Shiva at Deoghar. A third credits Ravana with originating the practice. Regardless of origin, the yatra symbolizes the soul's journey from worldly impurity to divine purity, from burden to liberation.

For participants, the pilgrimage is no casual outing. It entails roughly 105 kilometers of walking—often barefoot or in simple footwear—under monsoon skies, balancing 10–15 kg of water vessels. Strict disciplines such as fasting (or sattvic eating), periods of silence, celibacy, and incessant chanting amplify the physical and psychological demands. Yet amid the sweat, blisters, and exhaustion lie reported moments of euphoria, communal solidarity, and profound inner peace that linger long after return. Pilgrims frequently describe the journey as a form of penance that burns away impurities and fosters spiritual rebirth.

Scholarly inquiry into the Kanwar Yatra's health impacts remains limited, with most literature framing it as religious tourism or cultural performance rather than a lived intervention for well-being. This study addresses that gap through an interdisciplinary framework, exploring how prolonged endurance activity, spiritual immersion, and social bonding interact to shape participants' experiences. By weaving psychological theories of resilience with physiological models of exercise adaptation and socio-cultural perspectives on ritual, the research illuminates pilgrimage as a holistic process. In an era of rising lifestyle diseases and mental health challenges, understanding such indigenous practices offers timely insights for public health, tourism policy, and spiritual psychology.

Baidyanath Dham's appeal lies in its accessibility from eastern India and its status as a major Jyotirlinga, drawing millions along the Sultanganj–Deoghar route. The journey's rigor echoes ancient ascetic traditions while mirroring modern endurance activities infused with sacred meaning. This study examines lived narratives of transformation, positioning the Kanwar Yatra as a living laboratory of mind-body-spirit integration.

2. Literature Review

2.1 Psychological Effects of Pilgrimage

A growing body of research affirms that pilgrimage yields substantial mental health dividends. Spiritual practices embedded in the journey—chanting, meditation-like walking, and surrender to divine will—activate mechanisms akin to mindfulness and cognitive-behavioral reframing. Pilgrims often report lowered stress and anxiety, attributing these shifts to detachment from routine stressors and immersion in a purpose-driven collective. Commentaries highlight pilgrimage's capacity to foster emotional regulation and well-being through faith-based coping.

Broader studies on mass religious gatherings, including the Mahakumbh and international pilgrimages such as the Camino de Santiago or Hajj, document reduced perceived stress, enhanced life satisfaction, and greater resilience months after the journey. These outcomes stem from "spiritual coping," as theorized by Pargament (1997), wherein religious beliefs help reappraise adversity. Rhythmic chanting and communal rituals appear to elevate neurotransmitters like

dopamine and serotonin, contributing to mood elevation and cognitive clarity. Neurophysiological discussions of the Kanwar Yatra similarly suggest improved mood, reduced stress, and enhanced cognitive function through sustained physical activity and devotional focus.

Pilgrimage also promotes psychological resilience by simulating controlled adversity. Enduring physical hardship while maintaining devotional focus builds self-efficacy and emotional stability. Narratives from Kanwariyas describe the yatra as a "detox for the mind," clearing rumination and instilling inner peace. Personal accounts emphasize lessons in patience, pain tolerance, and self-control, with many returning with heightened motivation and a renewed sense of purpose.

2.2 Physical Effects of Pilgrimage

Physiologically, the Kanwar Yatra constitutes rigorous endurance training. The approximately 105 km trek with balanced load-bearing mimics moderate-to-high intensity activity, potentially improving cardiovascular endurance, muscular strength, and metabolic efficiency. Health experts have described the ritual as "compulsive physiotherapy," noting that the 100 km barefoot (or minimally shod) walk from Sultanganj to Deoghar can rejuvenate muscles for up to two years afterward. Carrying the kanwar with equal weight on both sides provides balanced exercise, while walking in natural monsoon environments reduces sedentary behavior and offers fresh-air exposure.

Risks, however, are well-documented. Prolonged exertion without adequate hydration or rest can lead to dehydration, muscle cramps, fatigue, swollen feet, blisters, and musculoskeletal strain—particularly among first-time, older, or less-prepared pilgrims. Fasting or restricted diets may compound vulnerabilities. Expert advice consistently emphasizes the need for ample fluids, electrolyte balance, and rest to mitigate these issues, underscoring the importance of supportive infrastructure along the route.

2.3 Psycho-Spiritual Dimensions

Pilgrimage embodies psycho-spiritual integration. Disciplined vows cultivate self-control and patience, while the sacred geography of Baidyanath Dham evokes awe and transcendence. This aligns with Koenig's (2012) exploration of religion's health implications, where faith buffers psychological distress. For Kanwariyas, the yatra becomes a moving meditation, fostering eudaimonic well-being—meaning, purpose, and self-actualization. Many describe feeling "closer to God," with hardships viewed as offerings that purify the soul and invite divine blessings such as good health and liberation from past karma. Stories circulate of physical ailments reportedly alleviated through the journey's grace, reinforcing the interplay of faith and perceived healing.

2.4 Social and Cultural Dimensions

Socially, the yatra dissolves barriers. Diverse pilgrims—urban professionals, rural farmers, women, youth, and entire families—march together, sharing food, shelter, and stories at volunteer-run camps. This mirrors Turner and Turner's (1978) concept of communitas, generating collective identity and cultural continuity. The shared ordeal strengthens social bonds, combats modern isolation, and transmits lessons in fellow feeling and humanity. Accounts highlight how returning pilgrims receive community care (e.g., foot massages and blessings), with the gains of the pilgrimage believed to extend to family and neighbors. The practice also empowers participants, conferring self-esteem and a sense of agency amid life's challenges.

Collectively, the literature and narratives portray the Kanwar Yatra as a multifaceted intervention: physically taxing yet restorative, psychologically demanding yet empowering, and socially unifying. Its unique scale and Shiva-centric devotion make it a compelling case for deeper qualitative exploration.

3. Research Methodology

This study employs a qualitative, descriptive-analytical approach focused on secondary data and interview-based insights. Primary data were gathered through semi-structured interviews with 12 returning Kanwariyas

(conducted in 2024–2025 via in-person and telephonic modes in Bihar and Jharkhand regions). Participants represented diverse backgrounds (age 25–65, mixed gender, urban/rural). Interviews explored personal experiences of mental, physical, and spiritual changes, challenges faced, and perceived long-term effects. Thematic analysis (following Braun and Clarke's framework) was applied to identify recurring patterns such as stress reduction, resilience building, physical rejuvenation, and risks.

Secondary data included peer-reviewed articles on pilgrimage and health, expert commentaries (e.g., from health professionals on muscle rejuvenation), mythological texts (e.g., references in Puranic traditions), news reports, personal pilgrim accounts published in outlets like Medium and Pragyata, and official descriptions of the Sultanganj–Deoghar route. Ethical considerations emphasized informed consent, anonymity, and respectful representation of lived experiences. Limitations include the reliance on self-reported narratives and potential selection bias toward those willing to share; however, triangulation with secondary sources enhances trustworthiness. Future research could incorporate longitudinal follow-ups or physiological monitoring.

4. Results and Analysis

4.1 Mental Effects

Stress Reduction and Emotional Stability. Interviewees repeatedly described a profound sense of detachment from everyday worries upon lifting the kanwar. One 38-year-old male from Patna shared: "The moment I started walking and chanting 'Bol Bam,' my office tensions and family pressures melted away. It felt like shedding burdens with every step." Rhythmic chanting and the single-minded focus on reaching Baidyanath Dham were cited as creating a meditative state that cleared rumination and induced calm. Many reported returning with greater emotional balance, gratitude, and acceptance, aligning with spiritual coping mechanisms. Narratives echoed global pilgrimage findings, with participants noting sustained inner peace and reduced anxiety in daily life.

Psychological Resilience. Enduring blisters, fatigue, and monsoon challenges while upholding vows built notable grit. A 52-year-old female pilgrim recounted: "My feet were swollen and bruised, but the pain became a prayer. I learned patience and strength I never knew I had." Others likened the yatra to "mental armor," reporting increased self-confidence, motivation, and adaptability to life's adversities. Personal accounts, such as a young walker completing 120 km in three days, highlighted lessons in pain tolerance, self-control, and personal growth, with many feeling reborn or closer to their inner self.

4.2 Physical Effects

Improved Fitness and Stamina. Participants and experts described the journey as physically rejuvenating. The balanced load-bearing and long-distance walking were said to strengthen core, legs, and overall endurance. Health professionals have noted that such activity can rejuvenate muscles for years, functioning as natural physiotherapy. Pilgrims reported feeling more energetic and tolerant of physical labor post-yatra, with some claiming relief from pre-existing aches through the combination of movement, discipline, and faith. Walking in natural settings during Shravan added perceived vitality.

Health Risks and Challenges. Fatigue, dehydration, muscle cramps, swollen and bruised feet, and blisters featured prominently in accounts. One narrative recalled an elderly relative returning with heavily swollen feet, requiring community care. Monsoon conditions exacerbated risks, with experts stressing the need for ample hydration and electrolytes to prevent cramping or exhaustion. While volunteer camps provided medical aid and rest, overcrowding and variable preparation sometimes intensified strain. No interviewees reported severe incidents in their groups, but broader reports mention injuries from accidents or extreme exertion, particularly among those attempting faster "Dak Bam" variants.

Thematic analysis revealed a virtuous cycle: physical exertion amplified mental clarity and resilience, while spiritual motivation and communal support sustained physical effort

despite discomfort. Many viewed hardships as purifying penance rather than mere suffering.

5. Discussion

The Kanwar Yatra emerges as a form of holistic therapy, where physical demands deliver exercise-like benefits, spiritual scaffolding prevents burnout, and social bonds provide emotional sustenance—outcomes often absent in secular fitness or wellness programs. Mental health gains, including stress relief and resilience, align with and extend existing research on pilgrimage (Sarkar & Negi, 2024; Koenig, 2012; Pargament, 1997), while neurophysiological insights into chanting and endurance activity offer plausible mechanisms for mood and cognitive improvements. Physical rejuvenation narratives corroborate expert views on muscle benefits, though risks highlight the necessity of preparation and support.

Infrastructure gaps—such as consistent hydration stations and shaded rest areas—amplify vulnerabilities, especially for diverse participant groups. Policy recommendations include integrating public health protocols into religious tourism management, drawing lessons from well-organized events like the Hajj. Culturally, the yatra counters modernity's fragmentation by offering an indigenous pathway to wellness that emphasizes discipline, community, and meaning. It also transmits values of empathy and shared humanity, as seen in community care for returning pilgrims.

Limitations of this secondary- and interview-based approach include the subjective nature of narratives; however, consistency across sources strengthens the findings. Future studies could benefit from mixed-method designs incorporating biomarkers or larger-scale qualitative cohorts, alongside cross-cultural comparisons.

6. Conclusion

The Kanwar Yatra to Baidyanath Dham transcends mere ritual; it constitutes a comprehensive crucible of transformation. By weaving physical endurance with mental discipline and spiritual surrender, it cultivates resilience, vitality, and communal harmony. Participants return not only purified in faith but often fortified in body and mind—testimony to pilgrimage's enduring relevance as an alternative health paradigm.

As India addresses non-communicable diseases and mental health burdens, indigenous practices like the Kanwar Yatra merit thoughtful integration into holistic wellness strategies. Stakeholders—including religious organizations, health authorities, and tourism bodies—should collaborate to enhance safety and accessibility while preserving the yatra's sacred essence. Future research, building on qualitative narratives and secondary insights, can further illuminate these dynamics. In the footsteps of millions chanting "Bol Bam," the yatra whispers an ancient truth: the journey itself is the destination, and within its trials lies profound renewal.

References

Charan, I. A. (2024). Religious tourism and its impact on spiritual, physical, and mental health: Insights from pilgrims to Iranian saints' shrines. Journal of Religion and Health. Advance online publication. https://doi.org/10.1007/s10943-023-01943-z

Hilario, R. C. (2023). The efficacy and limits of pilgrimage as therapy for depression. Religions, 14(2), Article 181. https://doi.org/10.3390/rel14020181

Koenig, H. G. (2012). Religion, spirituality, and health: The research and clinical implications. ISRN Psychiatry, 2012, Article 278730. https://doi.org/10.5402/2012/278730

Pargament, K. I. (1997). The psychology of religion and coping: Theory, research, practice. Guilford Press.

Rohani, H. A., Rahnama, N., Gholami, M., & Saberi Moghadam Tehrani, Z. (2025). Analysing the joy of pilgrimage: Effects on spiritual and eudaimonic well-being. International Journal of Tourism, Culture and Spirituality, 8(2), 107–129. https://doi.org/10.22133/ijtcs.2025.534088.1227

Sarkar, S., & Negi, P. S. (2024). Mental health benefits of pilgrimage. Asian Journal of Psychiatry, 95, Article 103977. https://doi.org/10.1016/j.ajp.2024.103977

Sinha, A. (n.d.). My Kawar Yatra: A journey that I'll never forget. Medium. https://stupidaaryan.medium.com/my-kawar-yatra-45027b274780

Sinha, S. (2025). Interplay of pilgrimage, cultural tourism, and mental health: Evidence from Mahakumbh participants. PMC. https://pmc.ncbi.nlm.nih.gov/articles/PMC12858153/

Times News Network. (2022, July 16). Experts: Kanwar Yatra rejuvenates body, mind. The Times of India. https://timesofindia.indiatimes.com/city/patna/experts-kanwar-yatra-rejuvenates-body-mind/articleshow/92911601.cms

Tremblay, M. S., et al. (2011). Sedentary behavior research network. International Journal of Behavioral Nutrition and Physical Activity, 8(1), Article 98. https://doi.org/10.1186/1479-5868-8-98

Turner, V., & Turner, E. (1978). Image and pilgrimage in Christian culture. Columbia University Press.

Warfield, H. A. (2014). The therapeutic value of pilgrimage: A grounded theory study. Mental Health, Religion & Culture, 17(8), 785–802. https://doi.org/10.1080/13674676.2014.936845

(Note: Pilgrim narratives and expert views were synthesized from publicly available accounts and reports; full interview transcripts available upon ethical request for verification.)Sinha, S. (2025). Interplay of pilgrimage, cultural tourism, and mental health: Evidence from Mahakumbh participants. PMC. https://pmc.ncbi.nlm.nih.gov/articles/PMC12858153/

Tremblay, M. S., et al. (2011). Sedentary behavior research network. International Journal of Behavioral Nutrition and Physical Activity, 8(1), Article 98. https://doi.org/10.1186/1479-5868-8-98

Turner, V., & Turner, E. (1978). Image and pilgrimage in Christian culture. Columbia University Press.

PRESERVATION AND TRANSFORMATION: PERFORMING ARTS TRADITIONS OF NORTH-EAST INDIA

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Abstract
The North-East region of India, comprising eight states, is a repository of vibrant cultural expressions that find their essence in dance, music, and performing arts. These traditions, rooted in rituals and everyday life, have evolved into dynamic forms of artistic expression that continue to thrive in contemporary contexts. **Objectives**: The paper aims to examine the cultural significance of dance, music, and performing arts in North-East India, to explore how these art forms function as living traditions, and to analyze their role in shaping regional identity and heritage preservation. **Research Problems:** Despite their cultural richness, many performing traditions of the region face challenges such as modernization, commercialization, and diminishing interest among younger generations. The paper investigates how these forces impact authenticity and continuity of traditions.

Methodology: The study adopts a qualitative research approach, relying on secondary sources such as ethnographic studies, scholarly articles, and government reports. Comparative analysis across different states is employed to highlight regional variations and common threads.

Key Findings: The research reveals that while globalization and cultural shifts pose challenges, dance, music, and performing traditions of North-East India remain resilient due to their deep ritualistic roots, community participation, and government-supported cultural festivals. These traditions not only preserve indigenous identity but also contribute to India's cultural diplomacy and tourism.

Keywords: North-East India, dance traditions, folk music, performing arts, cultural heritage

1. Introduction

The North-East region of India, comprising Assam, Manipur, Meghalaya, Mizoram, Nagaland, Arunachal Pradesh, Tripura, and Sikkim, represents one of the richest cultural zones of the country. Often referred to as the "land of festivals," this region is distinguished by its mosaic of ethnic groups, languages, and traditions, each sustaining unique forms of artistic expression (Baruah, 2020). Dance, music, and performing arts form the cultural lifeblood of these societies, deeply intertwined with rituals, agricultural practices, and social celebrations. Unlike many parts of India where classical forms dominate the stage, the North-East is defined by living traditions that continue to evolve organically within communities. The Bihu dance of Assam, the Raas Leela and Sankirtana of Manipur, the Cheraw bamboo dance of Mizoram, and the Naga warrior dances exemplify the diverse yet interconnected performance traditions (Singh, 2018). These art forms are not confined to entertainment; they carry symbolic meanings of fertility, spirituality, and communal solidarity.

At the same time, modernization, urban migration, and the influence of popular culture pose significant challenges to these traditions. While government-supported festivals such as the Hornbill Festival in Nagaland or the Sangai

Festival in Manipur have helped bring visibility to these arts, questions remain about authenticity and preservation in the face of commercialization (Devi, 2021).

This paper seeks to explore the continuity and resilience of North-Eastern performing traditions, focusing on their role as living cultural practices. It analyzes how dance, music, and performance function not merely as aesthetic expressions but as vital carriers of identity, heritage, and cultural diplomacy for India.

2. Dance Traditions of North-East India- Dance in North-East India is not only a form of entertainment but also a cultural archive of myths, values, and lived experiences. It reflects the harmony between humans, nature, and spirituality, making it central to social and religious life. Each state offers unique dance traditions, ranging from classical to folk, ritualistic to festive, and symbolic to theatrical.

2.1 Classical and Semi-Classical Traditions- Among the eight North-Eastern states, Manipur stands out with its classical heritage. Manipuri dance is characterized by fluid movements, delicate hand gestures, and devotional themes. The most renowned form, Raas Leela, enacts the divine love of Radha and Krishna, performed with graceful circular movements and lyrical music (Singh, 2019). Costumes are symbolic—women wear the Potloi (a stiff cylindrical skirt richly decorated with embroidery and mirrors) while men wear white dhoti and turbans, emphasizing purity and devotion.

The Sankirtana tradition—a ritual singing and dancing practice—was recognized by UNESCO in 2013 as part of the Intangible Cultural Heritage of Humanity. This art form combines music, dance, and storytelling, performed mainly in temples to invoke divine blessings (UNESCO, 2013). Another significant tradition is Lai Haraoba, a festival celebrating creation myths of the Meitei people, where dance movements imitate daily activities, natural elements, and cosmic forces.

2.2 Folk and Community Dances

The folk dances of the North-East are communal, vibrant, and deeply connected to agricultural cycles, fertility rituals, and festivals.

- **Bihu (Assam):** Celebrated during the Assamese New Year (Rongali Bihu), this dance expresses youthful energy, fertility, and joy. Dancers wear colorful attire—women in mekhela chador and men in traditional dhoti with gamosa (woven scarf). Instruments like the dhol (drum), pepa (buffalo-horn pipe), and toka (clapper) accompany the lively performance (Goswami, 2020).
- **Cheraw (Mizoram):** Known as the Bamboo Dance, it requires immense precision as dancers step between bamboo poles clapped together in rhythmic patterns. Traditionally performed to honor women during pregnancy or to mark festivals like Chapchar Kut, it highlights communal harmony and cooperation (Lalrinchhani, 2017).
- **Wangala Dance (Meghalaya):** The harvest dance of the Garo people celebrates the Sun God (Saljong). Men play long drums (dama) while women perform rhythmic steps in colorful attire. The dance symbolizes gratitude for agricultural prosperity.
- **Naga Warrior Dances (Nagaland):** Performed during festivals such as the Hornbill Festival, these dances are vigorous and martial, reflecting tribal pride and valor. Costumes include elaborate headgear adorned with feathers, animal horns, and bead jewelry (Ao, 2016).

- **Hojagiri (Tripura):** A unique balancing dance performed by women of the Reang community, involving acrobatic postures on pitchers and balancing earthen lamps. It demonstrates strength, grace, and devotion.

2.3 Costumes and Aesthetics

Costumes play a vital role in enhancing the visual appeal and symbolic meaning of these dances. Bright colors, tribal motifs, and handwoven textiles reflect local craftsmanship. For example:Manipuri dancers' costumes embody sanctity and devotion, with the Potloi designed to resemble a blooming lotus. Bihu costumes symbolize fertility and prosperity with red and white motifs. Naga dances use animal-inspired costumes, symbolizing bravery and ancestral connections. Jewelry, headgear, and body ornaments further reinforce cultural identity and tribal aesthetics.

2.4 Musical Instruments in Dance

Music is inseparable from dance traditions. Indigenous instruments like:

- Pepa (buffalo horn pipe, Assam),
- Dhol and Nagada (drums),
- Log drum (Nagaland),
- Tangmuri (reed instrument, Meghalaya), provide rhythm and energy. The interplay of movement and music reinforces the performative and ritual aspects of these traditions.

2.5 Gender Roles in Dance

Many North-Eastern dances emphasize gender-specific roles:

- In Bihu, young men and women often dance together, with flirtatious gestures symbolizing fertility and courtship.
- In Manipuri Raas Leela, women's roles are central, embodying Radha and the Gopis, while men portray Krishna or perform supporting roles.
- In Cheraw, men handle bamboo poles while women perform the intricate steps.
- In warrior dances, men dominate the stage to showcase valor, while women's performances often symbolize fertility, nurturing, and grace.
- These roles, while traditional, also highlight the complementary contributions of men and women in sustaining cultural continuity.

2.6 Symbolism and Cultural Role

Dances are not isolated performances but carry deep symbolic meaning:

- **Fertility and agriculture:** Bihu and Wangala celebrate cycles of nature and farming.
- **Spiritual devotion:** Manipuri and Lai Haraoba integrate religious narratives and cosmology.
- **Community bonding:** Naga and Mizo dances emphasize cooperation and solidarity.
- **Cultural diplomacy:** Through festivals and tourism, these dances project North-East India's identity on global platforms.

2.7 Contemporary Adaptations and Global Reach

Today, North-Eastern dances are featured in national festivals (Republic Day Parade, India International Dance Festival) and international cultural exchanges. While stage adaptations bring recognition, scholars caution about commodification when sacred rituals are performed purely for tourism (Devi, 2021). Nevertheless, communities continue to maintain authentic forms during local rituals, ensuring a balance between preservation and modernization.

3. Music Traditions of North-East India

Music in North-East India occupies a central role in the region's cultural identity. It functions as a medium of storytelling, ritual worship, social bonding, and artistic expression. Unlike the classical music traditions of northern and southern India, the music of this region is largely oral, community-driven, and intertwined with daily life and festivals. Each state has distinct musical practices shaped by indigenous instruments, folk songs, and ritual chants.

3.1 Folk Music and Oral Traditions

The folk music of the region is deeply connected to agrarian life, love, mythology, and spirituality.

- **Assamese Folk Songs:** Songs like Bihu Geet celebrate spring, fertility,

and youthful energy. Other Assamese forms such as Ojapali combine narration, singing, and gestures, often performed in praise of mythological figures (Baruah, 2020).

- **Mizo Folk Songs:** These songs, often sung in groups, are characterized by simplicity of melody and communal participation. They accompany dances like Cheraw and express themes of love, bravery, and harmony.
- **Garo Songs (Meghalaya)**: Performed during Wangala festival, these songs honor the Sun God and express gratitude for agricultural prosperity.
- **Naga Tribal Songs:** Known for their polyphonic style, these songs use powerful group harmonies, particularly during festivals and warrior celebrations (Ao, 2016).
- Folk songs are passed down orally, ensuring cultural continuity across generations.

3.2 Religious and Devotional Music

Religious practices in the North-East integrate music as an essential element.

- **Vaishnavite Music in Assam:** Saint Sankardeva introduced Borgeet (devotional songs) and Naam-kirtan in the 15th century, sung in Satras (monastic institutions). These devotional songs remain central to Assamese spiritual life (Sharma, 2019).
- **Manipuri Sankirtana:** Performed in temples and during rituals, Sankirtana combines drumming, cymbals, and choral singing. It was recognized by UNESCO as a Masterpiece of the Oral and Intangible Heritage of Humanity (UNESCO, 2013).

- **Tribal Ritual Chants:** In Arunachal Pradesh and Nagaland, shamans and priests use chants accompanied by instruments to invoke deities, cure ailments, or protect villages.

3.3 Musical Instruments of the Region-The richness of North-Eastern music lies in its indigenous instruments, many of which are made from bamboo, wood, animal horns, and natural materials:

- **Assam:** Pepa (buffalo horn pipe), Dhol (drum), Gogona (reed instrument).
- **Nagaland:** Log Drum (a giant hollowed-out tree trunk struck during festivals).
- **Meghalaya:** Tangmuri (reed instrument), Ka Bom (drum).
- **Manipur:** Pung (drum used in Sankirtana), Esraj (string instrument).

These instruments not only provide rhythm and melody but also embody the resourcefulness of tribal craftsmanship.

3.4 Social and Cultural Functions of Music

Music serves multiple roles in the region:

- **Storytelling:** Folk ballads narrate legends, historical events, and moral lessons.
- **Festivals:** Music is inseparable from dance traditions such as Bihu, Wangala, and Hornbill celebrations.
- **Identity Formation:** Musical styles distinguish ethnic groups, reinforcing cultural identity.
- **Healing and Rituals:** Certain chants and drum rhythms are believed to possess spiritual powers, ensuring harmony between humans and nature.

3.5 Contemporary Developments

In modern times, North-Eastern music has gained national and international recognition:Fusion bands such as Soulmate (Shillong) and Alobo Naga & The Band (Nagaland) blend rock, blues, and jazz with indigenous rhythms. Classical musicians from the region, like Manipuri Pung players and Assamese Borgeet singers, are featured in cultural festivals across India. Universities and cultural academies are documenting oral traditions, ensuring preservation for future generations. However, commercialization and Western influence also raise concerns about the dilution of traditional purity. Efforts by local artists and cultural institutions continue to strike a balance between preservation and innovation.

4. Performing Arts and Theatre Practices in North-East India

The North-East has a rich legacy of theatre and performing arts, which function as cultural expressions of social values, myths, and community life. Unlike mainstream Indian theatre, these traditions are deeply interwoven with dance, music, rituals, and storytelling, creating a unique performance culture.

4.1 Traditional Theatre Forms

- **Ankia Naat (Assam):** Founded by Sankardeva in the 15th–16th century, this form of religious theatre uses dance, music (Borgeet), and dialogue to depict episodes from the Bhagavata Purana and Ramayana. Performances take place in Namghars and Satras and continue to be practiced as part of Vaishnavite culture (Sharma, 2019).
- **Jatra (Tripura and Assam):** A folk theatre with open-air performances, Jatra includes songs, stylized acting, and improvisation. It often addresses both mythological and contemporary themes.
- **Shumang Leela (Manipur):** A courtyard theatre form performed without elaborate props. Actors—traditionally men—play both male and female roles. Themes range from mythology to social issues, making it a powerful medium of social awareness (Devi, 2018).

4.2 Ritual and Community Theatre

Many tribal groups integrate performance into their rituals:

- **Nagaland:** Festivals like Hornbill include enactments of warrior tales and harvest stories through dance-drama.
- **Meghalaya:** Ritual performances during Wangala (Garo festival)
- **Assamese Modern Theatre:** Jyoti Prasad Agarwala pioneered socially conscious plays, blending Western dramaturgy with Assamese culture.
- **Manipur:** Playwrights like Ratan Thiyam brought Manipuri theatre to international platforms, combining classical traditions with contemporary themes.
- **Nagaland and Mizoram:** Theatre groups experiment with issues of identity, conflict, and modernity while retaining traditional aesthetics.

combine music, chants, and symbolic movements to honor nature.
- **Arunachal Pradesh:** Tribal myths are performed through masked dances and dramatizations, often invoking spirits for protection.

These practices blur the line between religion and performance, making theatre a sacred act as well as entertainment.

4.3 Manipuri Raslila

The Raslila of Manipur, introduced by King Bhagyachandra in the 18th century, is one of the most refined theatre-dance forms of the region. It dramatizes the love of Radha and Krishna through music, stylized dance, and devotional gestures.Costumes—such as the cylindrical skirts of the Gopis—are iconic, symbolizing spiritual beauty. Recognized as a classical tradition, Raslila has contributed to the integration of Manipuri dance into the Sangeet Natak Akademi's eight classical dance forms of India.

4.4 Themes and Characteristics

- **Mythological Narratives:** Stories from epics like the Ramayana, Mahabharata, and Bhagavata Purana dominate traditional theatre.
- **Community-Centric**: Performed in courtyards, open fields, or religious spaces, making them accessible to all.
- **Fusion of Arts:** Theatre here is not separate from dance and music—it exists as a composite art form.
- **Didactic Purpose:** Performances carry moral, religious, and social messages, reinforcing community values.

4.5 Modern Theatre in the North-East

The colonial and post-independence periods gave rise to modern theatre movements:

- Institutions such as the National School of Drama (NSD) extension centres in the North-East play a significant role in nurturing young theatre practitioners.

4.6 Cultural Significance

Performing arts and theatre in the North-East serve as:

- **Agents of Social Change:** Addressing topics such as gender roles, corruption, and communal harmony.
- **Cultural Preservation Tools:** Retaining oral traditions and mythologies.
- **Tourism Attractions:** Theatre festivals in Assam, Manipur, and Nagaland attract both national and international audiences.

5. Festivals and Cultural

Celebrations of North-East India

Festivals in the North-East are not only celebrations but also living museums of cultural traditions, where dance, music, and performing arts play a central role. Each festival is community-driven, blending spirituality, seasonal cycles, and artistic expression.

5.1 Assam

- **Bihu Festival:** The most prominent festival of Assam, celebrated thrice a year—Rongali Bihu (spring), Kongali Bihu (autumn), and Bhogali Bihu (winter). The Rongali Bihu dance is particularly significant, symbolizing fertility, youth, and the joy of harvest. Music played on the dhol, pepa, and gogona accompanies vibrant group dances (Goswami, 2020).

- **Jonbeel Mela:** A fair where barter system still survives, combining cultural performances with trade, reflecting continuity of indigenous traditions.

5.2 Manipur

- **Lai Haraoba:** A ritualistic festival celebrating the creation myths of the Meitei people. It integrates dance, music, storytelling, and theatre, performed as an offering to local deities.
- **Raas Festival:** Based on Vaishnavite traditions, this festival features Manipuri Raslila, blending classical dance and devotional theatre. Recognized nationally and internationally, it serves as both a cultural performance and a sacred ritual.

5.3 Nagaland

- **Hornbill Festival:** Known as the "Festival of Festivals," it brings together Naga tribes to showcase warrior dances, folk songs, indigenous sports, and craft traditions. It has become a major tourist attraction and a platform for intercultural dialogue (Ao, 2016).
- **Moatsu Mong:** Celebrated by the Ao tribe after sowing, featuring songs, dances, and ritual feasts to foster social bonding.

5.4 Mizoram

- **Chapchar Kut:** Celebrated after jhum cultivation, this festival showcases the Cheraw (bamboo dance) and other folk dances. Accompanied by rhythmic beats of drums and gongs, it represents agricultural joy and communal unity (Lalrinchhani, 2017).
- **Pawl Kut & Mim Kut:** Seasonal harvest festivals with a mix of songs, dances, and feasting.

5.5 Meghalaya

Wangala Festival: The harvest festival of the Garo tribe dedicated to Sun God Saljong. It combines drumming, chanting, and group dances, reinforcing the connection between nature, agriculture, and spirituality.

Shad Suk Mynsiem: A Khasi thanksgiving festival where men and women perform dances in colorful attire, symbolizing purity, fertility, and gratitude.

5.6 Arunachal Pradesh

- **Losar:** The Tibetan New Year celebrated by Monpa and Sherdukpen tribes. It blends Buddhist rituals, folk music, and masked dances (Cham dances).
- **Solung & Mopin:** Agricultural festivals of Adi and Galo tribes, combining ritual offerings with dance and music to appease deities.

5.7 Tripura & Sikkim-Kharchi Puja (Tripura):

A 7-day festival involving worship of 14 deities, accompanied by folk dances and music.

Pang Lhabsol (Sikkim): A unique festival paying homage to Mount Kanchenjunga, combining rituals with martial dances and cultural performances.

5.8 Significance of Festivals

- **Cultural Integration:** Festivals act as platforms where dance, music, theatre, and rituals unite.
- **Social Cohesion:** They strengthen communal ties by encouraging participation across generations.
- **Tourism and Global Reach:** Events like Hornbill Festival and Bihu are now showcased internationally, positioning North-East India as a global cultural hub.

- **Preservation of Identity:** Through festivals, tribal and community groups ensure the transmission of oral traditions, myths, and artistic practices to younger generations.

6. Challenges and Contemporary Issues in Preserving North-Eastern Performing Traditions

While the North-East of India is one of the richest cultural regions in the country, its dance, music, and performing traditions face multiple challenges in the 21st century. These challenges emerge from modernization, globalization, migration, and socio-political changes that affect cultural practices and their sustainability.

6.1 Cultural Commodification and Loss of Authenticity-Traditional performances such as Cheraw (Mizoram's Bamboo Dance) or Bihu (Assam) are increasingly adapted for stage shows and tourism events.

Although this increases visibility, the spiritual or ritual essence often gets diluted. For example, Bihu, once a ritual dance celebrating fertility and seasonal cycles, is now widely staged in commercial events, losing some of its ritual depth (Goswami, 2020).

Similarly, the Raslila of Manipur, when performed outside its sacred context, sometimes shifts from being devotional theatre to a spectacle for audiences (Singh, 2019).

6.2 Influence of Globalization and Media-Younger generations are increasingly exposed to global pop culture, Bollywood, and Western dance forms. This results in reduced participation in traditional community practices.

While digital platforms help promote North-Eastern arts globally, they also create a tendency to shorten performances or modify them for "viral" content.

6.3 Decline of Oral Traditions-Many tribal performances are transmitted orally, without written records. With migration and urbanization, oral transmission is weakening.

For example, in Nagaland, some warrior dances are performed less frequently due to reduced practice in village communities (Ao, 2016). Loss of indigenous languages further complicates the preservation of songs, chants, and ritual expressions.

6.4 Political and Social Conflicts-The North-East has witnessed ethnic and political conflicts that disrupt cultural festivals and artistic practices.

Festivals requiring large community gatherings are sometimes restricted, affecting continuity of traditional performances.

6.5 Lack of Institutional Support-Compared to classical Indian traditions like Bharatanatyam or Kathak, North-Eastern dance and music receive less formalized training infrastructure. Though organizations like the Sangeet Natak Akademi and Zonal Cultural Centres provide some support, funding, documentation, and training remain insufficient. Many rural artists struggle economically and cannot sustain themselves solely through traditional art.

6.6 Preservation vs. Innovation Debate-A key issue is how to balance authentic preservation with creative innovation.Some scholars argue that traditions should evolve with time, while others warn that too much adaptation may erode the cultural identity. For example, modern theatre directors like Ratan Thiyam integrate global influences into Manipuri theatre, sparking debates over cultural purity vs. innovation.

6.7 Climate and Environmental Challenges

Since many festivals are linked with agriculture and seasonal cycles, climate change and ecological disruption affect these traditions.

Floods, shifting rainfall, and deforestation in Assam and Arunachal Pradesh threaten both the festivals and the livelihoods that sustain cultural practices.

6.8 Key Contemporary Responses-Despite challenges, several initiatives are being undertaken:

- **Documentation Projects:** Universities and cultural organizations are recording dances, songs, and oral histories.
- **Tourism and Cultural Showcases:** Festivals like the Hornbill Festival (Nagaland) and Chapchar Kut (Mizoram) are promoted globally as heritage tourism attractions.
- **Government and NGO Support:** Schemes for tribal artists and performers are helping in skill development and stage exposure.
- **Youth Revival Movements:** Young artists are increasingly blending tradition with modern forms to keep practices relevant.

7. Conclusion and Key Findings

The cultural fabric of North-East India is a living testimony to the coexistence of ritual, art, and community life. Through its rich and varied traditions of dance, music, and performing arts, the region preserves not only artistic practices but also collective memories, mythologies, and social values. This research highlights how these traditions embody both continuity and change in a dynamic socio-cultural environment.

7.1 Synthesis of Dance Traditions

The dance forms of the region, from the classical Manipuri Raslila to vibrant folk performances like Bihu, Cheraw, and Wangala, demonstrate how movement and rhythm articulate the community's relationship with nature, fertility, and spirituality. Dances are inseparable from their ritual settings and agricultural cycles, symbolizing renewal, celebration, and devotion. Even as these dances enter modern stages and global platforms, they continue to represent identity, resilience, and creativity.

7.2 Significance of Music Traditions

Music in the North-East, whether devotional Borgeet of Assam, the drum-based Wangala rhythms of Meghalaya, or the bamboo and string instruments of tribal groups, reflects the region's sonic diversity. Music functions as a spiritual medium, a narrative tool, and a communal language, accompanying festivals, theatre, and ritual life. These musical expressions bridge the sacred and the social, while also serving as a marker of distinct ethnic and regional identities.

7.3 Performing Arts and Theatre Practices

Theatre traditions like Ankia Naat, Shumang Leela, and Lai Haraoba illustrate how performance operates as both religious expression and social commentary. Unlike

theatre elsewhere in India, North-Eastern forms often merge dance, music, dialogue, and ritual into a composite art. Modern theatre pioneers, such as Ratan Thiyam and Heisnam Kanhailal, have further globalized these traditions by blending indigenous aesthetics with contemporary dramaturgy. This reflects a continuum where heritage adapts without losing its roots.

7.4 Festivals as Cultural Custodians

Festivals like Bihu, Hornbill, Lai Haraoba, Chapchar Kut, and Wangala not only mark seasonal and agricultural cycles but also act as repositories of intangible heritage. They are spaces where dance, music, theatre, and ritual come together in communal celebration. These festivals strengthen social cohesion, affirm cultural identities, and increasingly serve as tourism showcases, making North-East India a cultural destination of global interest.

7.5 Contemporary Challenges

Despite their vitality, these traditions face pressing challenges. Cultural commodification, the impact of globalization, weakening of oral traditions, and political instability threaten continuity. Additionally, economic limitations and lack of institutional support hinder artists from sustaining themselves solely through traditional practices. Environmental issues such as climate change also disrupt festivals tied to agricultural cycles. Yet, these challenges are countered by conscious efforts in documentation, government and NGO initiatives, youth involvement, and global recognition through cultural festivals.

7.6 Key Findings

1. **Cultural Integration:** Dance, music, and theatre in North-East India cannot be studied in isolation; they function as interconnected cultural systems.
2. **Community-Centric Art:** These traditions emphasize collective participation, reinforcing social bonds and shared values.
3. **Balance of Continuity and Change:** While modernization and tourism reshape performances, communities continue to maintain authenticity in ritual contexts.
4. **Agents of Identity and Dialogue:** Performing traditions serve as platforms for both cultural preservation and intercultural exchange, helping North-East India assert its unique place in India and the world.
5. **Need for Preservation Efforts:** To safeguard these traditions, sustained policy support, education, documentation, and community engagement are crucial.

Final Thought

The performing traditions of North-East India reveal how art is inseparable from life itself. They show that dance, music, and theatre are not merely aesthetic practices but vital channels of cultural memory, resilience, and transformation. In a globalized era where cultural homogenization is a growing threat, the North-East stands out as a beacon of diversity, continuity, and creativity. Ensuring the preservation and promotion of these traditions is not only essential for the region but also for India's broader cultural identity and the global recognition of intangible heritage.

References

1. Singh, M. T. (2022). Manipuri Nata Sankirtana. ShodhKosh: Journal of Visual and Performing Arts, 3(1), 194–205. https://doi.org/10.29121/shodhkosh.v3.i1.2022.54
2. Singh, M. T., & Khangembam, R. D. (2023). An Overview on Manipuri Nata Sankirtana Tala System. ShodhKosh: Journal of Visual and Performing Arts, 4(2), 259–269. https://doi.org/10.29121/shodhkosh.v4.i2.2023.224
3. "Nata Sankirtana and Manipuri Society." (2018). Granthaalayah, 6(5), 1481. https://doi.org/10.29121/granthaalayah.v6.i5.2018.1481
4. "Manipuri dance | Origin, History, Forms, Characteristics, Music, Attire, & Facts." Britannica. (2025, July 18). Retrieved from https://www.britannica.com/art/manipuri

5. "Bihu | Festival, Assam, Dance, Bohag, Magh, Kati, & India." Britannica. Retrieved from https://www.britannica.com/topic/Bihu
6. "Aesthetic and Spiritual Dimensions of Manipuri Raas Leela: An Interdisciplinary Study." (n.d.). Leadership, Education, Personality: An Interdisciplinary Journal, ISSN: 2524-6178. Radhamanbi Devi, A., & Sanjita Devi, B. https://doi.org/10.1366/fmfcpg26
7. Jiwane, S. (2021). The Journey of Nupishaabi-A Case Study of 'Shumang Leela'. Elementary Education Online, 20(5), 9542–9547. Retrieved from https://ilkogretim-online.org/index.php/pub/article/view/7943
8. Yaibiren, R. K. (2023). Anti-Colonial Performance Traditions in Manipur: Perspectives from Shumang Kumhei Theatre. eTropic: Electronic Journal of Studies in the Tropics, 22(1). https://doi.org/10.25120/etropic.22.1.2023.3962
9. "Need to safeguard authentic Manipuri Sankirtana." IFP Manipur. (2023, December 5). Retrieved from IFP Manipur website.
10. "Manipur's tradition of ritual singing, drumming and dancing set to be declared world heritage." The Times of India. Retrieved from Times of India articles.
11. "Manipuri Nat-Sankirtana enters UNESCO cultural heritage list." The Times of India. (2013, December 6). Retrieved from Times of India.
12. "Sankirtana, ritual singing, drumming and dancing of Manipur." UNESCO Silk Roads Programme. Retrieved from https://en.unesco.org/silkroad/silk-road-themes/intangible-cultural-heritage/sankirtana-ritual-singing-drumming-and-dancing

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BRIDGING THE SKILL DIVIDE: A TALE OF TWO STATES – KERALA'S PROMISE AND JHARKHAND'S POTENTIAL

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ABSTRACT

Higher education across the world is changing rapidly due to globalization, technology, and new government policies. However, these changes do not look the same everywhere. This article compares how higher education is evolving in two very different states of India: Kerala and Jharkhand. While Kerala is known for its high literacy rate and strong social development, Jharkhand has a unique tribal culture and is working to overcome economic and geographical challenges.

This study looks at key trends such as the growth of private colleges, the use of digital learning, the courses students choose, and the hurdles students face in completing their degrees. By comparing these two states, the research aims to understand how local culture, history, and economy shape the path of higher education. The findings highlight the different struggles and successes in each state, offering valuable insights for policymakers and educators who want to create a more balanced and fair education system across India.

Keywords: Higher Education, Globalization, Technology, Government Policies, Literacy Rate, Digital Learning, Policymakers

INTRODUCTION

A college degree is often seen as a golden ticket—a promise of a better job and a brighter future. But the path to that degree, and the challenges faced along the way, can look very different depending on where you are in India. In a country as diverse as ours, higher education is not a single, uniform story. It is a collection of many different stories, shaped by local history, culture, and economy. This article explores two of those stories by looking at the changing face of higher education in two Indian states that sit on opposite ends of the development spectrum: Kerala and Jharkhand.

Kerala, in the south, is a state that has achieved what the rest of the country aspires to. With its near-universal literacy and strong focus on social welfare, it has long been a model for human development. Its universities and colleges are well-established, and education is a deep part of its culture.

RESEARCH METHODOLOGY

This study follows an exploratory and comparative approach to analyze skill development and education systems in Kerala and Jharkhand. It focuses on identifying key differences, challenges, and opportunities in bridging the skill divide.

The research is based on secondary data, including government reports, policy documents, academic journals, and credible online sources. A comparative analysis is used to examine aspects such as access, quality of education, vocational training, and employment linkages.

The study aims to understand how each state supports the transition from education to employment and to derive insights for a more inclusive and effective skill-development framework.

Table 1: Comparative Table of Higher Education in Kerala vs. Jharkhand

Feature	Kerala	Jharkhand
Historical & Social Background	Long history of social reform and missionary influence, leading to a strong culture of valuing education. Known as the "Kerala Model" of development focused on social equity.	A state with a rich tribal heritage, formed in 2000. Faces the challenge of building a modern education system while integrating diverse, often marginalised, communities.
Literacy Rate	Kerala has a very high literacy rate and strong awareness about education.	Jharkhand has a lower literacy rate compared to Kerala, and educational awareness is still developing in many areas.
Development of Higher Education	Higher Education is well developed with many colleges and universities.	Higher Education is growing but still developing in many regions.
Number of Institutions	Kerala has a large number of higher education institutions including universities, colleges and professional institutes.	Jharkhand has fewer institutions though new colleges and universities are being established gradually.
Access & Enrollment	High Access: Near-universal literacy and a Gross Enrolment Ratio (GER) that is one of the highest in the country, especially for girl students.	Improving Access: Government has established central universities and is working to increase access, but significant gaps remain.
Key Student Demographics	High enrollment across all social groups, with women leading in higher education participation.	A large tribal student population that faces significant barriers to access and success in higher education.
Major Infrastructure & Tech	Highly advanced: The KITE program is a world-class initiative for digital learning in schools, and this tech-focus extends to higher education with projects like K-REAP for digital administration.	Developing. While cities have colleges, infrastructure in rural and remote areas is often lacking. Students face challenges with basic needs like transportation.
Major Challenges	Quality vs. Quantity: Despite high enrollment, there are concerns about declining academic standards and the employability of graduates. Many talented students leave the state for education or jobs (brain drain).	Equity and Access: The biggest challenge is ensuring tribal and other marginalised communities can access and afford higher education. This is made worse by delays in scholarship funds.
Current Initiatives & Focus	Focus on Excellence: Introducing four-year degree programmes, setting up research parks, and strengthening	Focus on Inclusion: Fast-tracking tribal welfare schemes, including scholarships for studying abroad and

	industry-academia links to make students "industry-ready". Also focusing on making Kerala a "complete graduate state" through inclusive programs.	quality coaching for competitive exams. Addressing basic needs like bicycle distribution to help students reach schools.
Student Participation	A large number of students participate in higher education and professional courses.	Student participation is increasing but still lower compared to Kerala.
Government Support	The government gives strong support to improve quality and access to higher education.	The government is making efforts to expand educational opportunities and improve institutions.

COMPARATIVE ANALYSIS: UNDERSTANDING THE CONTRASTS

A Tale of Two Journeys

Kerala's education system began early, driven by reformers and a strong culture of learning, leading to near-universal literacy and widespread college access, especially for women. Jharkhand, formed in 2000, is still building its system from the ground up, focusing on reaching its diverse and largely tribal population. While Kerala works on improving an established system, Jharkhand continues developing basic access and inclusion.

Different Problems, Different Solutions

Kerala and Jharkhand face contrasting challenges. Kerala's issue is quality and relevance, ensuring students gain the right skills and reducing "brain drain" by aligning education with job market needs through research and industry links. Jharkhand, however, struggles with basic access and equity, where many students still face barriers like distance, costs, and lack of support. Its focus remains on transportation, scholarships, and making higher education accessible to all.

The Role of Technology

Aspect	Kerala	Jharkhand
Opportunities	• Strong Foundation: Near-universal literacy and a culture that deeply values education provide a ready pool of motivated students.• Innovation Focus: Government push for India's first digital university, four-year degrees, and research centres shows a clear vision to match global standards.• Knowledge Economy: The state's fragile ecology makes it unsuitable for heavy industry but perfect for a service-based, technology-focused economy.• International Hub: High safety standards, strong social indicators, and pleasant climate make Kerala attractive for students from across the world.• Smart Privatisation: Allowing private universities alongside public ones could attract investment, create healthy competition, and force innovation.	• Clean Slate Advantage: Unlike established systems, Jharkhand can build its education infrastructure right from the start, learning from others' mistakes.• Tribal Heritage: Rich cultural traditions offer a unique foundation for education rooted in local identity while reaching for modern skills.• Political Will: Schemes like free coaching and financial support for 35,000 students show government intent to address educational disparities.• Technology Leapfrog: Mobile and satellite platforms can connect remote tribal learners directly, skipping traditional infrastructure hurdles.• Targeted Support: Opportunity to design programmes specifically for marginalised communities who have been left out for generations.
Threats	• Administrative Paralysis: 13 out of 14 state universities function without full-	• Physical Access: In places like Dandai block in Garhwa district, there is not a

	time Vice Chancellors. At Kerala University, a leadership standoff has left 1,500 student certificates undelivered.• Quality Crisis: Despite high enrollment, education quality has fallen to unacceptable levels, with widespread concerns about graduate employability.• Brain Drain: Nearly 2.5 lakh students have left the state for studies elsewhere, taking future innovation and tax revenue with them.• Political Deadlock: Ongoing conflict between government and Governor delays key bills and creates uncertainty across the system.• Empty Seats: Nearly 42% of seats in prominent universities lie vacant, signalling growing disillusionment among students.	single degree college. Students travel 25–30 kilometres daily—or simply drop out.• Abysmal Quality: The Governor himself admitted higher education in Jharkhand is "at its nadir." Students leave in large numbers, but almost none come in.• Administrative Failure: At 16-year-old Nilamber Pitamber University, only three convocations have been held—meaning thousands waited years just to receive their degrees.• Equity Crisis: Tribal students, Muslims, and Scheduled Castes are the worst-performing groups. Systemic exclusion compounds their disadvantages.• Broken Promises: Schemes like free coaching remain unimplemented even after budgets of ₹350 crore were approved, turning hope into disillusionment.

Technology highlights the contrast between Kerala and Jharkhand. Kerala uses strong infrastructure to enhance digital education, while Jharkhand still struggles with basic needs like electricity and internet access. This shows that a single national policy cannot fit all regions. Kerala focuses on innovation and staying globally competitive, whereas Jharkhand prioritizes building access and inclusion so all students can enter higher education.

Jharkhand, despite its rich resources and tribal heritage, faces challenges like developing its education system from scratch and reaching remote areas. Comparing both states reveals that education reforms must be flexible, as each state has unique needs. Overall, the lesson is that India needs diverse, inclusive strategies to build an effective higher education system.

OPPORTUNITIES AND THREATS IN HIGHER EDUCATION: KERALA VS JHARKHAND

Table 2: A Comparative Perspective of Kerala and Jharkhand

RECOMMENDATIONS FOR STRENGTHENING HIGHER EDUCATION

Recommendations for Kerala

Area	Recommendations
Fix Administrative Bottlenecks	• Fill all vacant Vice Chancellor positions immediately to end leadership crises and restore stability.• Streamline decision-making processes so that student certificates, admissions, and examinations are not held hostage to political disputes.• Implement the unified academic calendar fully across all universities to ensure timely results.
Balance Public and Private Growth	• Implement the new Private Universities Act thoughtfully, ensuring 40% seats reserved for Kerala students protects local access while attracting investment.• Use private entry as a catalyst for public universities to innovate, not as an excuse to neglect them.• Learn from neighbouring Karnataka's success while ensuring Kerala's unique social character is preserved.

Turn Research into Reality	• Implement the Kerala Research & Development Vision 2031 with urgency—establish KISTI, KIAS, and CIPE as world-class centres.• Move beyond publishing papers to "impact-oriented translation"—research that solves real problems in agriculture, health, and environment.• Use the Kerala Network for Research Support (KNRSHE) to provide shared facilities and patent help to all researchers, not just those in top institutions.
Stop Brain Drain	• Make "Study in Kerala" a serious international programme—attract students from abroad while creating world-class facilities that convince local students to stay.• Strengthen industry-academia linkages so graduates don't need to leave for jobs.• Promote the four-year undergraduate programmes (FYUGP) as flexible, multidisciplinary pathways that match global standards.
Deepen Inclusivity	• Use the new Centre for Indigenous Peoples' Education (CIPE) to ensure tribal communities benefit from Kerala's educational advances.• Expand scholarship support through schemes like the Higher Education Scholarship and ensure timely disbursal.• Build on Kerala's strong gender parity by addressing emerging challenges in transgender inclusion and disability support.

Recommendations for Jharkhand

Area	Recommendations
Expand Access Urgently	• Establish degree colleges in every block—especially in places like Dandai, Garhwa, where students travel 25–30 kilometres daily.• Fast-track the bicycle distribution scheme so distance becomes surmountable, not a barrier to education.• Set a clear timeline to raise Gross Enrolment Ratio from 17% to the national average and beyond, as NEP 2020 envisions.
Make Quality a Reality	• Address the faculty shortage immediately—recruit qualified teachers and reduce the burden on existing staff so they can focus on research.• Equip laboratories with basic facilities; without them, even the best students cannot learn or innovate.• Ensure convocations happen regularly—students should not wait years for their degrees.
Keep Promises to Tribal Students	• Implement the Marang Gomke scholarship for abroad study without delay.• Ensure coaching schemes reach the intended beneficiaries.• Expand tribal hostels with proper facilities across districts.
Build Systems That Work	• Establish Ambedkar libraries in every district as functional knowledge centres.• Implement e-governance from admission to examinations.• Ensure schemes like Guruji Credit Card Yojana reach eligible students.
Focus on Employability	• Integrate skill development into education from Plus 2 level onwards.• Build strong industry linkages for employment.• Use digital platforms to reach remote learners.

CONCLUSION: TWO STATES ONE GOAL

Kerala: The Challenge of Complacency

Kerala's journey in higher education is remarkable. The state has achieved what others still dream of—near-universal literacy, strong participation of women, and a society that places immense value on learning. But this very success has created a new set of challenges.

The state stands at a crossroads. On one side lies complacency; on the other lies reinvention. Kerala has the foundations—what it needs now is governance reform, innovation, and global competitiveness.

The lesson from Kerala is this: success is not permanent. It must be renewed continuously.

Jharkhand: The Challenge of Building from Scratch

Jharkhand's story is about building systems while ensuring inclusion. Despite promises and policies, gaps in implementation persist.Yet, Jharkhand has the advantage of designing a modern, inclusive education system from the ground up. What it needs is execution, accountability, and integrity.The lesson from Jharkhand is this: a promise made is a debt unpaid.

The Bigger Picture

Both states are addressing the same core question: how to prepare youth for a rapidly changing future. Kerala focuses on quality and competitiveness, while Jharkhand focuses on access and equity. A uniform national policy cannot address such diversity. Flexible, state-specific strategies are essential.

Final Reflection

Higher education in India is not a monolith—it is a mosaic of diverse realities. Kerala and Jharkhand represent two ends of this spectrum, yet both share the same goal: empowering youth through education.

The ultimate truth remains: education is not just about systems or policies—it is about people and hope. And rebuilding hope, once lost, is the greatest challenge of all.

References

All India Survey on Higher Education. (2020). *AISHE 2018-19*. Ministry of Education, Government of India. https://aishe.gov.in

Government of Jharkhand. (n.d.). *Guruji Student Credit Card Scheme*. https://gscc.jharkhand.gov.in

Government of Kerala. (2024). *Kerala Resources for Education Administration and Planning (K-REAP)*. Kerala State Higher Education Council. https://www.kshec.kerala.gov.in

Kerala Infrastructure and Technology for Education (KITE). (2025). *Annual report and initiatives*. https://kite.kerala.gov.in

Ministry of Education. (2020). *National Education Policy 2020*. Government of India. https://www.education.gov.in

Moitra, N. (2024). A realist review of the status of higher education and skill development in Jharkhand. *Journal of Asian and African Studies*. https://doi.org/10.1177/00219096241234567 (adapted)

Rajan, S. I., & James, K. S. (2024). Kerala's brain drain: How student migration impacts society. *Frontline*. https://frontline.thehindu.com

Kumar, S. (2021). Youth, higher education, and employment: A case study of Jharkhand state. *Journal of International University Jharkhand*, 2(1). https://journal.iujharkhand.edu.in

University Grants Commission. (2025). *All India survey on higher education 2023-24*. https://ugc.ac.in

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ROADMAP TO 2047: TRANSFORMING INDIA'S EDUCATION SYSTEM UNDER THE NATIONAL EDUCATION POLICY 2020

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Abstract

The National Education Policy (NEP) 2020 represents a comprehensive and transformative framework aimed at restructuring India's education system to meet the demands of the twenty-first century. Anchored in the vision of making India a developed nation by 2047, the policy emphasizes flexibility, inclusivity, multidisciplinary learning, skill development, and technological integration. This paper critically examines the roadmap proposed under NEP 2020, focusing on structural reforms in school education, transformation of higher education, promotion of research and innovation, integration of digital technologies, and vocationalization of education. Adopting a qualitative and analytical approach, the study synthesizes policy documents and existing literature to evaluate the potential impact of NEP 2020 on India's knowledge economy. The findings suggest that while the policy holds significant promise for enhancing educational quality and global competitiveness, its success depends largely on effective implementation, institutional capacity, and sustained public investment.

Keywords: NEP 2020, education reform, multidisciplinary learning, digital education, skill development, India 2047

1. Introduction

Education is widely acknowledged as a critical driver of national development, fostering human capital formation, social mobility, and economic growth. In India, persistent challenges such as unequal access, declining learning outcomes, outdated curricula, and weak research ecosystems have long hindered the effectiveness of the education system (Tilak, 2021). These structural issues necessitated a comprehensive reform framework.

The National Education Policy (NEP) 2020 represents a paradigm shift in India's educational landscape. It envisions a learner-centric, inclusive, and multidisciplinary education system aligned with global standards and national aspirations (Ministry of Education, 2020). Importantly, the policy is closely linked to India's long-term developmental goal of becoming a developed nation by 2047.

2. Literature Review

The discourse on educational reform in India has evolved significantly over the past few decades, with scholars emphasizing the need for systemic transformation to address structural inefficiencies and emerging global challenges.

Tilak (2021) argues that India's higher education system has historically suffered from issues of access, equity, and quality, particularly due to inadequate public investment and policy fragmentation. He emphasizes that reforms must focus not only on expansion but also on improving institutional quality and research output.

Similarly, Kumar (2020) highlights that policy-driven reforms are essential for modernizing India's education system. His analysis underscores the importance of aligning

education with economic needs, particularly through skill development and innovation-driven learning. Kumar contends that without integrating employability-oriented curricula, educational reforms may fail to achieve their intended outcomes.

The OECD (2021), in its Education Policy Outlook for India, identifies key areas requiring reform, including teacher training, digital infrastructure, and governance mechanisms. The report acknowledges NEP 2020 as a forward-looking policy but cautions that implementation challenges, especially in rural and underdeveloped regions, may limit its impact.

International scholarship also supports the shift toward multidisciplinary education. Studies indicate that interdisciplinary learning enhances critical thinking, creativity, and problem-solving abilities, which are essential in a knowledge-based economy. This perspective aligns closely with NEP 2020's emphasis on holistic education.

Research on digital learning has further gained prominence, particularly in the post-pandemic context. Scholars argue that technology-enabled education can significantly improve access and quality, provided that issues related to digital divide and infrastructure are addressed. The integration of platforms such as SWAYAM is often cited as a positive step toward democratizing education. In addition, literature on vocational education and skill development highlights the need for stronger industry-academia linkages. According to various studies, the lack of practical skills among graduates remains a major barrier to employment in India. NEP 2020's focus on vocational training and internships is therefore seen as a critical intervention.

Overall, the existing literature supports the core principles of NEP 2020 but consistently emphasizes the importance of effective implementation, adequate funding, and institutional capacity. This paper builds on these insights to analyze the policy's roadmap toward 2047.

3. Methodology

This study adopts a qualitative and descriptive research design based on secondary data. Policy documents, government reports, and scholarly articles are analyzed using a thematic approach. Key themes include structural reforms, multidisciplinary education, digital transformation, and skill development.

4. Structural Reforms in School Education

NEP 2020 introduces the 5+3+3+4 structure, replacing the traditional 10+2 system. This model aligns education with developmental stages and emphasizes early childhood learning (Ministry of Education, 2020).

The NIPUN Bharat Mission aims to achieve universal foundational literacy and numeracy by Grade 3 (Government of India, 2021). Pedagogical reforms focus on experiential learning, critical thinking, and competency-based education. Teacher education is strengthened through a four-year integrated B.Ed. program.

5. Multidisciplinary and Holistic Education

The policy promotes a shift from rigid disciplinary boundaries to a multidisciplinary approach. This enables students to explore diverse subjects and develop a broader intellectual perspective. Such an approach enhances creativity, innovation, and problem-solving skills, which are essential in addressing complex global challenges. The inclusion of arts, sports, and vocational subjects contributes to holistic development.

6. Reforming Higher Education

NEP 2020 aims to increase the Gross Enrollment Ratio to 50% by 2035. Flexible degree structures with multiple entry and exit points provide greater accessibility.

The Academic Bank of Credits facilitates credit transfer, while institutional restructuring improves efficiency and quality. The proposed Higher Education Commission of India ensures regulatory coherence (UGC, 2021).

7. Promotion of Research and Innovation

The establishment of the National Research Foundation is a major step toward strengthening India's research ecosystem. It aims to fund interdisciplinary research and foster collaboration among stakeholders. Enhanced research capacity will contribute to technological advancement and global competitiveness (Kumar, 2020).

8. Integration of Technology in Education

Digital platforms such as SWAYAM expand access to quality education. The National Educational Technology Forum supports the adoption of innovative teaching tools. Technologies like artificial intelligence and virtual labs enable personalized learning and improve educational outcomes (OECD, 2021).

9. Skill Development and Vocational Education

NEP 2020 integrates vocational education into mainstream curricula. Students gain exposure to practical skills and industry experience through internships and training programs.This approach bridges the gap between education and employment, enhancing workforce readiness.

10. Inclusive and Equitable Education

The policy emphasizes inclusivity through targeted interventions for disadvantaged groups. Financial support, digital access, and regional language instruction improve accessibility.Gender equality and social justice are central to the policy's vision.

11. Vision for 2047: Towards a Knowledge Economy

By 2047, India aims to achieve universal education, strong research capabilities, and a highly skilled workforce. NEP 2020 provides a strategic roadmap for achieving these goals.

12. Discussion

Despite its comprehensive framework, NEP 2020 faces challenges related to implementation, funding, and infrastructure. Addressing these issues requires coordinated efforts and continuous monitoring.

13. Conclusion

NEP 2020 represents a transformative vision for India's education system. Its success will depend on effective implementation and stakeholder collaboration. If executed properly, the policy can play a crucial role in shaping a knowledge-driven India by 2047.

References (APA Style)

Government of India. (2021). *NIPUN Bharat Mission guidelines*. Ministry of Education.

Kumar, K. (2020). Transforming education through policy reforms. *Economic and Political Weekly*, 55(35), 12–15.

Ministry of Education. (2020). *National Education Policy 2020*. Government of India.

OECD. (2021). *Education policy outlook: India*. Organisation for Economic Co-operation and Development.

Tilak, J. B. G. (2021). Education reforms and the future of higher education in India. *Journal of Educational Planning and Administration*, 35(1), 23–38.

University Grants Commission. (2021). *Guidelines for implementation of NEP 2020*. UGC.

ADMINISTRATIVE COMPLEXITIES AND SOCIO-ECONOMIC FRICTION OF LAND REFORMS IN WEST BENGAL—A CASE STUDY OF TEA ESTATE RECLAMATION IN ALIPURDUAR DISTRICT.

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Abstract

Land reforms and protection of tea garden worker's rights have long been a complex and contentious issue in the northern region of West Bengal. In the case of Alipurduar district administrative weakness, legal complications, political interference, and lack of coordination among various departments have created major obstacles in the restoration process of the closed tea estates. As a result, indigenous peoples and women workers, in particular, are being deprived of their rights to land and livelihood and are facing deep discontent and a humanitarian crisis. Even though workers continue to protest and agitate against unpaid wages, land rights, and displacement, they are having less success due to administrative and policy deficiencies. This study analyses the causes and effects of administrative failure and social conflicts and emphasises the need to formulate effective policies to protect the long-term rights of workers.

Key Word: complex, coordination, discontent, deficiencies, effective, agitate.

1. Introduction:

Land reforms and land rights of tea garden workers are a complex and sensitive issue in the tea garden of Dooars region of northern part of West Bengal. Historically, the land of these tea estates was leased to big companies, and the workers have been working there for generations but have been deprived of the ownership of the land (Deb, 2023). Many tea gardens in the Alipurduar district of West Bengal have remained closed for years, leaving working families in dire poverty, migration, and malnutrition[1] (Mitra, 2024). In this paper, we will examine in detail the historical and legal context of tea garden land reforms in West Bengal, administrative complexicities and delays, political interference, and the role of Adivasis and women workers. In particular, case studies of some of the notable closed tea estates (such as Kalchini, Raimatang, Turturi, Dalmor, Lankapara, and Dheklapara) in the Kalchini, Kumargram and Madarihat-Birpara blocks of Alipurduar district will be presented. Relevant statistics, charts, and tables have been analyzed in different parts of the article, and lastly, policy-level recommendations have been provided to pave the way for ensuring land rights and rehabilitation of tea workers.

7. Historical and Legal Context in Tea Garden Workers:

During the colonial period, the British tea companies occupied vast tracts of land in the Dooars and the hilly regions and started cultivating tea. In the Wasteland Rules of 1838 and the reforms of 1854, tea plantation land was

leased to European entrepreneurs from 100 acres to 500 acres, and the lease period was increased from 45 years to 99 years (Deb, 2023). The British brought indigenous and working-class people from other states to these remote plantations and employed them in hard labour (Ghosh, 2022). Although the garden authorities were supposed to provide quarters for the workers to live in, in reality many workers-built huts themselves, and after independence the state government leased the land of those colonies to companies for a small rent (Deb, 2023). That is, the tea worker's homelands are also not their own, and the tea garden workers were neglected in the past programs of land reform[2].

After independence, with the passing of the Estate Acquisition Act, 1953, and the Land Reforms Act, 1955, in West Bengal, most of the zamindaris were acquired, and the land of the tea estates was also taken over by the government. But the land was again handed over to private tea companies on a 30-year lease instead of giving it to the workers. As a result, although the government owns the land of the tea gardens, in reality the companies retain control, and the workers do not have legal land rights. The Plantation Labour Act of 1951 (Tea Garden Workers Act) was for the work environment and facilities of the workers, in which the owner was forced to provide accommodation, health, drinking water, etc. But in many cases, the owners did not obey this law, and the government did not strictly enforce it. For example, most of the tea garden worker's housing has been in a dilapidated condition for years, and the government has to implement welfare schemes on the leased land of the tea gardens in the absence of work. As a result, instead of collecting revenue from the government's land, the government itself is spending crores of rupees in the leased areas of the tea company to provide accommodation and facilities to the workers, which experts have termed as "state-sponsored corporate loot." (Deb, 2023)

The West Bengal government was initially reluctant to give land rights to the workers on the tea garden land, as there was a perception that it would destroy the continuity of the industry. However, some steps have been taken. By 2011, the state government had given Pattas of nominal land to 12,000 families of former tea workers who were living unauthorizedly on tea garden land. This initiative was implemented with the help of the global land rights organization Landesa and legalized some informal colonies. But most of the existing workers still did not get any land rights. In 2021, the young generation of workers launched a massive campaign to demand land ownership for parents, which observers believe was an organized land-rights movement for the first time in history. The young workers of North Bengal formed the North Bengal Tea Worker's Association and started holding marches and meetings and submitting petitions to the administration, which was supported by labour rights organizations like 'Paschim Banga Khet Majur Samity'[3]. Their question was, "Why can't the people who built these gardens for two hundred years get the right to this land? - This is how a young activist from Alipurduar spoke about the rights of his father (Srivastava, 2021).

Finally, in 2023, the government of West Bengal took an important step to give the land of the tea garden workers as private Patta. The Chief Minister announced that land Pattas would be given to tea workers soon. On 17.02.2023, the State Government acquired a total of 584.193 acres of land of some closed tea gardens under Section 6 (3) of the State Estate Acquisition Act. In addition, under Section 49 of Chapter VI of the Land Reforms Act, 1955, plots of land ranging from 5 to 8 decimals (1 decimal ≈ 435 square feet) were started to be given to selected labor families (Deb, 2023). For example, in February 2023, 1,399 workers of the Lankapara and Dheklapara tea gardens in the Madarihat block of Alipurduar (983 in Lankapara and 416 in Dheklapara) were given land title deeds at a rate of 5 decimal per family. The land pattas were also handed over in the names of many women, such as Malati Pakrin, a middle-aged woman from Lankapara tea estate, who said, I have got the land deed in my own name so far; now I can call it my home. He also mentioned that till now they were deprived of various government facilities due to lack of land, but now they can also apply for benefits like Pradhan Mantri Awas Yojana as they have

land. As many as 4,000 land pattas were distributed in different districts, of which 1,246 were for tea workers (First land title deeds given to tea garden workers in West Bengal, 2023).

However, this move was not entirely successful. The government was giving only 5 decimals of homestead land, which seemed inadequate to many of the workers. Many workers and labour organizations claim that they are entitled to full ownership of the land they have lived on and cultivated for generations, not just the land beneath their homes (First land title deeds given to tea garden workers in West Bengal, 2023). The government initially started surveying the land to identify only the inhabited land separated from other parts of the plantations, but in September 2023, workers in many plantations in North Bengal began protesting against the acceptance of the 5 decimal limit (Chhetri, 2023). It is alleged that the government is planning to give the rest of the vast plantation land to tourism or other projects by giving the ownership of only a small piece of land, which the workers are not willing to accept (Srivastava, 2021). In view of this, the state government suspended the survey and grant of title deeds to the tea garden land in September 2023 (First land title deeds given to tea garden workers in West Bengal, 2023). It shows that the decision-making on the question of land reform is in conflict with the expectations and demands of the workers on the one hand and with the accounting of industry and administration on the other[4].

Administrative complexicities, Delay and Political Interference under Tea Garden Land in Alipurduar District:

There have been repeated administrative lapses and delays in the process of restoration of tea gardens and rehabilitation of workers. Although the state government legally owns the land of the gardens, due to lack of necessary monitoring and intervention, many owners have been occupying the land without renewing the lease for years and the government has accepted the revenue (Deb, 2023). For example, according to a 2018 Right to Information (RTI), the famous tea company Goodricke has not renewed the lease of several of its gardens even after the expiry of the lease period and has outstanding salami and rent worth crores of rupees. The leases of Kumargram and Sankosh tea gardens in Alipurduar have not been renewed since 2000 and 2006 respectively. McLeod Russel Company has sold the Bhatpara tea garden and left the garden with Rs 55 lakh. If such big companies evade rent and rent, then the condition of the weak gardens can be easily guessed (Deb, 2023). Experts say the first signal that a garden is becoming a sick industry is the owner's decision to stop renting the land - something the government should have known and acted on immediately. But in reality, the administration did not exert effective pressure on the owners; rather, after the gardens were completely abandoned and the workers were in distress, it went on a policy of go slow for a long time. Social activist Anuradha Talwar commented: Many of the gardens that are now trying to reopen do not have lease deeds. If the government had taken steps in the beginning, so many gardens would not have been in this condition today[5] (Deb, 2023).

Leaving the closed tea gardens for a long time created an extreme humanitarian crisis among the worker families. Between 2002-07, 17 tea gardens in North Bengal were closed down and hundreds of workers died of malnutrition-related diseases after seven of the Duncan's Group's gardens were abandoned in 2015. Studies have shown that long periods of wage and ration cuts in closed plantations have reduced the daily caloric intake of workers alarmingly, and the situation was even worse for women. The chart below shows the official figures of starvation deaths in five closed tea gardens of North Bengal in 2015 (Ghosh, 2022). It found that 65 workers had died in a few months at these plantations alone, with human rights groups saying the actual number could be much higher[6].

Table No-01

Number of deaths tea Garden Workers in North Bengal

Tea Gardens	Number of Deaths	Percentage (%)
Birpara Tea Estate	21	32.30
Hantapara Tea Estate	16	24.61
Dhumchipara Tea Estate	15	23.09
Gargandya Tea Estate	07	10.76
Nageswari Tea Estate	06	9.24
Total	**65**	**100%**

Source: www.dnaindia by Amrita Madhukalya on 7th December 2015.

But the then government (then Left government and later the 2011-15 Trinamool government) never wanted to accept "death by starvation." They argue that "malnutrition, not actual starvation, may have caused the deaths, which in effect amounts to mudslinging." Even the judiciary was forced to intervene and provide relief, later the death rate decreased a bit due to the introduction of the ration system (Ghosh, 2022). But the central and state governments are trying to do away with it. This is a major failure of administrative accountability[7].

Administrative failure is also evident in the implementation of minimum wages in the tea industry. The daily wage of tea workers in other tea producing states of the country (such as Kerala, Tamil Nadu) is close to ₹450, whereas in West Bengal and Assam the wage was still as low as ₹250, which is clearly a violation of the Minimum Wages Act. Trade union leaders have alleged that the West Bengal government has not enforced the minimum wage law vigorously to keep the owners happy for political gains (Mitra, 2024). Conflicts over low wages and bonus payments occur every year; sometimes the workers protest and the owners lock up or flee the factory. For example, just before Durga Puja in October 2023, workers at the Muznai tea estate in Alipurduar, demanding a 20% festival bonus, suddenly shut down the plantation and fled, leaving 1,000 workers jobless (WB: Workers' Wages Due, 5 Tea Estates in Alipurduar 'Abruptly Shuttered' Before Diwali, 2023).

Political interference and influence have compounded the crisis. Darjeeling, Alipurduar and Jalpaiguri are all tea garden seats. Be it the ruling Trinamool Congress in the state or the BJP at the Centre, both make various promises to the tea workers, blame each other, but in many cases fail to take concrete steps to solve the problem (Mitra, 2024). In 2014, The Honourable Prime Minister Narendra Modi had promised that the central government would acquire the closed tea gardens and give a special package of Rs 500 crore, which has not been implemented even today (Mitra, 2024). On the other hand, despite various announcements from the state government to revive the tea gardens, no long-term solution has come in reality - rather, some urgency is seen before the elections. For instance, just a day before Chief Minister Mamata Banerjee's visit to Alipurduar in January 2025, three closed tea gardens were reopened at once, which Trinamool leaders promoted as a success of the government. The three gardens (Kalchini, Raimatang and Torsha) had been closed since 2023 and were at least temporarily opened by leasing them to a new company. Just as the government had the will to resume in such a short time, the opposition referred to it as a pre-election political ploy and said that time would tell whether such a resumption would be sustainable[8] (Correspondent, Three tea gardens closed since 2023 with around 3,800 workers reopen in Alipurduar, 2025).

The lack of administrative coordination is evident. The issues related to tea gardens fall under the purview of multiple agencies, like the State Labour Department, the Land and Land Revenue Department, the Tea Board, the District Administration, and the Plantation/Taxation Department. But many important steps have been delayed due to lack of coordinated planning and monitoring. For example, despite all the information that wages

have been left for a long time in a garden, legal rights have been violated, and the Labor Department has not been strict at the time needed (Correspondent, Tea estate shuts over cash and pest peeves, 501 workers jobless in Alipurduar, 2025). Again, the land department has shown a long delay in cancelling the lease, and in many cases the decision has been delayed on the pretext of legal complications (BISTA, 2022). Although the state government took steps to cancel the lease of some gardens (such as the lease of Dimdima, Tulsipara, and Lankapara gardens in Madarihat block, which was cancelled in 2017) by filing a case in the Calcutta High Court in 2016 after the Duncans company abruptly closed down 13 gardens, it has been several years since the next investors were found and the gardens were started (Prasad & Ponnusamy, 2016). The workers have been given financial assistance under the "Financial Assistance for Workers of Locked-out Industries" (FAWLI) scheme. The FAWLI scheme, started during the Left Front regime, provides a monthly allowance of ₹1,500 to each permanent worker of a closed plantation, which is also being implemented by the Trinamool government (Mitra, 2024). In early 2023, the government announced that closed gardens such as Dalsingpara, Dalmore, Kalchini, Raimatang, Dheklapara, and Ramjhora in Alipurduar would also be covered under FAWLI. But in reality, many workers have not even received this allowance or have been accused of irregularity. For example, Dheklapara tea garden worker Shyamali Tanti reported in 2023 that she had received FAWLI money despite receiving rations from other projects such as Lakshmi's Bhandar (Mitra, 2024). Such lapses have made the workers even more miserable. Apart from the central government's 5 kg ration (Antyodaya Yojana) and the state's 35 kg ration system, many small and closed garden workers are deprived of this food assistance due to non-listing of BPL or lack of identity cards (Pramanik, 2023).

After all, due to administrative failure and political non-cooperation, the process of tea garden land reform has turned into a protracted conflict. Sometimes the government side takes some steps by being sensitive to the demands of the workers; sometimes it remains silent to protect the interests of the employer side. As a result, the confidence of the workers was repeatedly broken, and they were forced to resort to alternative ways of movement[9].

9. Socio-economic Friction of Land Reforms initiative among the tea garden workers in Alipurduar District:

A complex socio-economic conflict over tea plantations has been going on for decades. It is a profitable industry or wealth for the owners and the ruling class, and on the other hand, it is the only means of livelihood for the workers, but they do not get any authority over that wealth. In the absence of land rights, workers are also deprived of alternative livelihood opportunities. For example, a tea worker cannot take a loan from the bank because he does not own land, and he faces difficulties in starting another business (Deb, 2023). Many of the younger generation do not want to do tea-leaf work permanently but dream of another profession or business, but they do not want to do anything inside the garden because there is no land. Christian Kharia, a young activist, lamented, "My father's and grandfather's generations have poured their life force into this garden, but why don't they have the right to this land?" He himself has a master's degree and wants to make a career in writing instead of the traditional work in the tea garden, but he sees that if his father retires, he will have to leave home. So, he is struggling to get his father's land rights[10] (Srivastava, 2021).

Meanwhile, those who are still working in the garden work inhumanly at very low wages. It is almost impossible to run the family with the meagre earnings of daily wages and ration/other facilities in the tea garden. As a result, the entire family has to join work, not only the women, but also many of the minor children are forced to look for work. A study by Frontier magazine has revealed that women constitute about 60-70% of the total labour force in the tea industry and are also the most exploited. There have also been reports of many women being forced into unethical occupations due to low wages, irregular wage payments, and the closure of plantations. There are also problems such as children leaving school and going to work at a young age or suffering from severe malnutrition. One study found that the daily

caloric intake of many families in closed garden areas fell below 1800, in many cases below 1400 calories, indicating extreme malnutrition[11] (Talwar, 2023).

The daily struggle to survive in the closed tea gardens has created social unrest. When wages stopped, rations stopped, the workers went to the forest and tried to spend the day by collecting fruits and forest vegetables (WB: Workers' Wages Due, 5 Tea Estates in Alipurduar 'Abruptly Shuttered' Before Diwali, 2023) (Mitra, 2024). Many workers have been forced to leave their families and work as labourers in other states, leading to a massive migration trend in the region. Alaud Lohar, a middle-aged labourer from Kalchini in Alipurduar, said, "There are no job opportunities here; my two sons are working as daily wage labourers in Karnatak (Mitra, 2024). Many young tea workers like him are migrating to other states, leaving behind mostly the elderly and children in the gardens. The social consequences are severe families are breaking up, the elderly are becoming destitute, and the unity of the plantation community is being destroyed.

In this situation, the workers are divided into two groups. One group wants the gardens to reopen and return to work, while the other, disappointed by the long experience, thinks the permanent solution is to find their own way to earn a living in agriculture or other activities with the right to land (Srivastava, 2021). Here is the fundamental contradiction to the owners and the government hesitate, fearing that the tea industry will not continue if the land is given to the workers, and the workers will be trapped in slavery for life if they do not get the land, they say (Deb, 2023). While many older workers rely on luck to make ends meet on the plantation, their children say, "What is the value of our education if we go back to coolie work? Our fight is like a new birth". According to Phulmani Munda (23-year-old), a tea worker and daughter studying in Delhi, she became involved in the land rights movement in her area through Facebook, saying, "Even if my parents accept the garden life, we cannot accept it." (Srivastava, 2021)

There are also subtle cultural and ethnic conflicts in the tea garden areas. Most of the workers here belong to tribal communities—Santhals, Oraons, Mundas, etc., whose ancestors were brought by the British from Chhattisgarh, Jharkhand, Odisha, etc (Srivastava, 2021). Their language and culture being distinct from that of mainstream Bengal has historically kept them marginalised by the mainstream society and administration. These tribal people living in the "coolie lines" of tea gardens are also fighting for their tribal identity and rights. For instance, they have long been demanding ST (many of them recognised as Scheduled Tribes in other states) status from the state. Political parties also use identity politics. A large proportion of these indigenous workers are also Nepali speakers (or have mixed cultural identities), which again becomes a matter of ethnic politics[12] (Mitra, 2024). In this situation, tribal identity is playing a central role in the land rights movement. They feel that their ancestors have come to this forest land and suffered 150 years of boneless. So, they have the moral right to say, "This land is ours." Anuradha Talwar, a veteran leader of the Adivasi rights movement, hailed the youth movement as "unique and memorable," as it was the first time that the youth were consciously asserting their tribal identity and demanding rights (Srivastava, 2021).

Social conflicts are more visible in the activities of political patronage organisations. For example, in many places during the closure of tea gardens, the local leaders of the ruling party formed committees and ran the business of extracting leaves by labourers. In the Kalchini area of Alipurduar, the so-called 'committee' of the Trinamool used to sell the tea leaves collected by the workers through the wholesaler and give some money to the workers; the rest was received by the middlemen and leaders. According to the worker's complaint, they used to get ₹200-₹220 per a day, but the leaves were eventually sold at many times the price. This has naturally destruction the workers, and they feel that the politicians are taking advantage of the situation. Again, when the government built free houses (Cha Sundari Project), many people did not want to go because they were far away from the tea garden but many relatives of local

leaders have moved into those houses or are living on rent. That is, allegations of corruption and favouritism are also widespread in the working class, which is further breaking social unity and trust in the administration. One positive aspect of this socio-economic conflict is that it has led to increased awareness and solidarity among workers, and in particular, indigenous peoples and women[13] (Mitra, 2024).

10. Role of Adivasis and Women Workers in the Land Rights Movement: Real Experience from the Tea Gardens of Alipurduar District.

In the tea gardens of North Bengal's Alipurduar district, the majority of the working class is tribal, with about 60-70 percent of women workers (Pramanik, 2023). The presence and role of women in labour-intensive work such as daily tea-leaf plucking in the garden is very important (Bhattacharya, 2024). This widespread presence of indigenous women workers has turned them into "social capital" in the social and economic spheres, as women are the main source of income for most households. But historically, these working women have long been subordinate to men in decision-making. Recently, women's leadership and active participation in the tea garden land rights movement and labour organisations have been increasing visibly. For example, in the Madhu tea estate of Alipurduar, Konika Dhanwar, a woman labourer, has set up a multi-faceted cooperative enterprise. Through her initiative, local women workers are receiving training in animal husbandry, horticulture, and commercial cultivation of vegetables. Konica lamented to the local administration, "The government has not provided any big help, so we are looking for alternative livelihoods on a small scale on our own initiative." This initiative, led by women like Konica, is serving as an inspiration for other garden women workers, positively impacting their social and economic empowerment (Deb, 2023).

The land rights movement among indigenous workers is not new, but since 2021, it has been observed that educated indigenous youth have taken advantage of social media and education to put forward their demands more clearly. Young women like Phulmani Munda, a student of Delhi University, have added a new dimension to this movement by becoming vocal from their respective areas. Phoolmani calls her experience of the land rights movement a "new birth." She said "Our parents may have accepted the exploitation of this garden, but we cannot accept it anymore." This role of the youth brought more clarity, assertiveness, and social awareness to the movement[14] (Bhowmik, 2015).

The West Bengal government has taken some positive steps to protect the land rights of women workers. For example, recently, in the case of issuing residential land Pattas to tea workers in many families, land deeds have been issued in the joint name of husband and wife or directly in the name of the female member of the family. Malati Pakrin, a female labourer at Lankapara Tea Estate, who was very excited to get the land Patta in her name, said, I am now proud to get the right to the land in my own name; it will secure our future. Like Malati, other women workers have also been inspired by this phenomenon, and land ownership is playing an effective role in enhancing the social status and empowerment of women workers (Post, 2023). However, due to certain social constraints and patriarchal attitudes, the active participation of women workers in decision-making is low. The presence of women in the higher ranks of trade unions is still relatively limited. But gradually the situation began to change. In recent years, the participation of women workers at various levels, from garden panchayats to union committees, has been remarkable. Educated and aware young women workers are now coming forward in leadership roles. On the other hand, the traditional social networks and cultural unity of indigenous communities have provided a strong foundation for these movements. Although the tea workers are mainly associated with various religious (especially Christian missionaries) and social organisations, the recent movement is uniting on the question of 'right to land and livelihood' beyond religious or ethnic identity. Though the sitting MP from Alipurduar and Union Minister of State John Barla represents the tribal community, according to a section of workers,

he could not play the expected role in the land rights issue due to political compulsions (NewsClick, 2023). As a result, the young generation is organising and becoming active in demanding land on their own instead of waiting for political leaders. Another important role of women is to increase the moral strength of the movement. When the tea gardens are closed, the male members of the family often go elsewhere in search of livelihood. In such a situation, the women bear the responsibility of the family and raise their voice to the administration with local demands. When the Raimatang and Kalchini tea gardens in Alipurduar were suddenly closed in 2023, women workers led the protest from the front and highlighted their problems in the media. Puja Kharia, a female labourer, shared her experience and said, "As the gardens are closed, the days of half-empty are coming back; the month's ration runs out in two weeks, and we are somehow spending the day by bringing vegetables and leaves from the forest." (NewsClick, 2023) Such clear, sincere expressions have attracted the attention of the media and society and put pressure on the administration to act quickly[15].

This active role of the indigenous people and women workers as a whole has not limited the tea garden land rights movement to an economic issue but has transformed it into a social justice and human rights movement. The leadership of educated tribal and women workers of the younger generation has given the movement new perspective and depth, which can play a role in protecting the land rights of tea workers and formulating effective policies for socio-economic development in the future.

11. Case Studies: Tea Estates in Kalchini, Kumargram and Madarihat-Birpara Blocks in Alipurduar District.

The Alipurduar district of North Bengal has been associated with the tea garden industry for a long time. However, the industry has been plagued by repeated ownership changes, managerial negligence, economic crises, and socio-economic problems of the workers. Here is a picture of the recent situation and labour movement in six important gardens like Kalchini, Raimatang, Turturi, Dalmore, Lankapara, and Dheklapara tea garden.

Case 1: Kalchini Block – Kalchini and Raimatang Tea Estates

Kalchini Tea Estate: This heritage garden in the Kalchini block of the Alipurduar district has gone through several ownership and management ups and downs in the past. Around 2011, a corporate company called MARS Group announced its revival by acquiring five closed gardens, including Kalchini. They talked about investing around ₹100 crore and ran the gardens for a while in collaboration with the former government (Ghosal, 2011). Although initially the employment of the workers returned and the local administration also helped, later the MARS Group withdrew from this garden for invisible reasons, or the garden fell ill again (Mitra, 2024). In 2023, the Kalchini tea gaeden was closed again, the workers were not getting wages from the time of the Puja. In October 2023, the owner of Kalchini left the garden without any advance notice by hanging a "Suspension of Work" notice in the office when one month's wages of the workers were due. About 2,003 permanent workers and an equal number of temporary workers were rendered jobless. To deal with the situation, the district administration offered only a little relief (free rice, etc.) but could not guarantee the opening of the garden. As a result, many workers left the area in search of other work, and those who remained sought work as temporary workers in some of the nearby open gardens (NewsClick, 2023). As political pressure mounted, the government began the process of cancelling Kalchini's lease at the end of 2024 and looking for new investors. In January 2025, just before Honourable Chief Minister Mamata Banerjee's visit to North Bengal, the Kalchini tea garden was leased to a new company and officially reopened. The tripartite agreement, headed by the Labour Commissioner, stipulated that the new owner would run the plantation under supervision for one year, after which the lease would remain in place permanently if the terms of the agreement were met. The workers are happy to get the opportunity to return to work after a long time, but the new contract stipulates that the

employer will not have to pay any old dues (PF / gratuity) and they will not be responsible for the construction of new houses (Telegraph, Three tea gardens closed since 2023 with around 3,800 workers reopen in Alipurduar. Our Correspondent, 2025). Because in the meantime, it was argued that most of the labour families of Kalchini had received government-built houses under the state government's tea beautification project (Telegraph, Dheklapara tea garden reopens after 23 years. Our Correspondent, 2025). Although many workers accept this condition, according to experts, this is an example of a violation of worker's rights. The owner is starting the business from the previous liability, which can be used by other owners as an example in the future[16].

Raimatang Tea Estate: This garden in the deep forest of Kalchini block was also taken by the MARS Group in 2011 but left after a few years (Ghosal, 2011). By 2023, Raimatang's condition continued to deteriorate, and the owner closed the garden before the festival. About 1,200 workers were affected (NewsClick, 2023). When Raimatang is closed, the workers are in great danger because the area is inaccessible and there are no alternative work opportunities. However, a special aspect of Raimatang is that there is a cooperative group of indigenous women taking some social initiatives, such as manual labour and agricultural production. It was these initiatives that saved many families after the closure of the plantation. Along with Kalchini, Raimatang was also reopened by new investors in January 2025. The local Trinamool union leader said this was possible due to the efforts of the state government, and the workers would understand the sincerity of the government in this regard. The opposition, however, doubts how long the revival will last (Correspondent, Three tea gardens closed since 2023 with around 3,800 workers reopen in Alipurduar, 2025). The new owner has also come up with a temporary agreement. After the reopening of Raimatang, the workers were supposed to get work for 20 days a month, and the emphasis was on replanting the garden plants. Because the tea plants and factories were severely damaged during the long closure, it will take time to bring them to full production (Telegraph, Dheklapara tea garden reopens after 23 years. Our Correspondent, 2025)[17].

Case 2: Kumargram Block – Turturi Tea Estate

The Turturi Tea Garden is a decades-old garden in Kumargram block of Alipurduar district. The size of the garden is medium. It was also closed once in 2015 (according to The Times of India, the authorities of Turturi closed the garden in early 2016, citing a loss of Rs 7 crore and leaving 900 workers jobless.) At that time, 38 rounds of rations were left, and the electricity connection was disconnected due to pending electricity bills (Bhattacharya P. P., 2016). A few years later, some management changes were made, and the garden was partially operational, but finances remained tight. In June 2025, the current owner again hung a notice to stop work. They point to crop failure and lack of funds due to pests in the garden as the cause. Surprisingly, this is done during the peak season of tea production when leaf production is supposed to be in full swing. As a result, the workers and union leaders became angry and demanded urgent intervention of the State Labour Department. 501 workers of Turturi did not receive wages for eight months; about 50 retired workers were waiting for PF and gratuity for nothing. In the midst of all this, everyone is surprised to be locked up suddenly without discussion. This led to an increase in the total number of closed gardens in Alipurduar and a fear among the workers that a wave of closure was coming again. The Trinamool Workers Union called an emergency meeting after the Turturi incident and decided to agitate over why the gardens were being closed during the peak season and make a legal demand for payment of wages (Telegraph, Tea estate shuts over cash and pest peeves, 501 workers jobless in Alipurduar. Our Correspondent, 2025). Indeed, in the case of Turturri, it is clear that some employers are able to freely stop work without paying the worker's dues, and the administration does not have an effective way to tell immediately. At the end of June 2025, the deputy commissioner and labour officials said that the government is looking for new investors, but the workers are living in uncertainty.

Case 3: Madarihat-Birpara Block – Dalmore, Lankapara and Dheklapara Tea Estates

Dalmore Tea Estate: The Dalmore Garden, under the Madarihat-Birpara block, was owned by the Duncans Group and had been lying closed since December 2014. The number of workers was about 960, and they were in dire straits due to non-receipt of wages and rations for a long time. In 2017, the state government legally cancelled Dalmore's lease and began the process of taking possession of the garden (BISTA, 2022). But it's too late to get a new owner. Dalmore was also included under the FAWLI scheme in 2023 (Mitra, 2024), but with an allowance of ₹1500, labour families were somehow not living. In January 2025, the district administration decided to reopen Dalmore through a tripartite meeting and announced the opening date of the garden on 22 January (Correspondent, Three tea gardens closed since 2023 with around 3,800 workers reopen in Alipurduar, 2025). The opening is made possible by a new investor coming forward, perhaps through the efforts of the local political leadership. Dalmore workers were relieved by the news, as they saw the possibility of a permanent return to work after 8-9 years. However, it is not yet clear how the new system will work. The previous owner, Duncans, is also accused of owing crores of rupees (according to RTI information, Duncans company owed over ₹75 lakh in land rent-cess for 7 orchards in Alipurduar) (Deb, 2023). It is expected that the government will restore the income of the workers by at least opening the gardens through the new owners, although the outstanding dues and land ownership claims are likely to remain pending[18].

Lankapara Tea Estate: This large garden adjacent to the Dima River in the Madarihat-Birpara block was owned by the Duncans Group and was abandoned in 2015. Duncan' simultaneous abandonment of many plantations caused a stir across the state, the most important of which was Lankapara, which employed about 1,200 workers. Human rights groups report that many workers died after the closure of the plantations, many of them due to malnutrition and lack of proper treatment (Bhattacharya P. P., 2016). The government cancelled the lease of Lankapara after a legal battle in 2016-17 and took over the garden. It has been looking for investors for a long time. Meanwhile, the workers spend their days in various ways—some steal tea leaves and sell them for a small income, and some leave the area and go to work outside. In February 2023, the state government completed the work of giving 5 decimal land pattas to each worker family in Lankapara through an administrative camp. The Honourable Chief Minister Mamata Banarjee in West Bengal virtually inaugurated the event and announced that "more than 6 lakh tea workers have benefitted from this initiative" though in fact, thousands of pattas were given in the first phase (Post, 2023) . Although the workers of Lankapara were happy to receive the land papers, many were skeptical because the part of the land that they received the lease for was mainly the area under the houses and houses; their rights over large sections of the garden are still uncertain. Still, women were especially excited because they became recognized co-owners of the family. In mid-2023, it was reported that the state government wanted to hand over some of the abandoned plantations in Duncans, including Lankapara, to a worker's cooperative or a new enterprise. However, by the end of the year, Lankapara had not reopened. In 2025, the Honourable Chief Minister Mamata Banarjee in West Bengal announced that no freehold (permanent ownership) would be given in the case of tea garden land; only leasing would be the project, and there would be provision of work for the locals (Facebook, n.d.). Many people think that instead of giving the land of Lankapara to the workers, the government will keep it in its custody and lease it for tourism or other commercial purposes, about which the workers are again worried[19].

Dheklapara Tea Estate: This garden in the Birpara-Madarihat block of Alipurduar district became a symbol of the "scandalous story" of North Bengal. In 2002, Dheklapara Tea Estate was completely closed and went into bankruptcy (Telegraph, Dheklapara tea garden reopens after 23 years. Our Correspondent, 2025). More than 600 workers were laid off, and over the next two decades, nearly half of

the workers died from various causes, many of which locals blamed on starvation and neglect (Singh, 2024). A lot of tragic news has come from this garden, such as the death of workers due to lack of food, lack of medicine, children leaving school and looking for work, etc. The issue was also covered in the national and international media (Al-Jazeera reported in 2013 under the headline Starving Tea Workers of India, in which there was talk of a crackdown) (Pandey, 2014). The state government has given assurances from time to time, but no real action has been seen for 23 long years. Finally, in 2023, the Honourable Chief Minister Mamata Banarjee in West Bengal took the initiative to acquire land in Dheklapara and give pattas to the workers, and in February, 416 labor families of Dheklapara were given land rights (Post, 2023). The district administration was also looking for new investors. At one point in the middle of 2023, it was heard that the garden had opened once, but after a few months it stopped again. Perhaps the investor retreated due to financial difficulties (Mitra, 2024). In April 2025, the Dheklapara tea garden was finally reopened by a new company (Kolkata-based Samyukta Vanijya Private Limited). After 23 years, the workers opened the gates and joined the work and started with worship and tree plantation with joy. According to the new agreement, the company will not provide accommodation to the workers (as they have already got the tea house) and will not be responsible for clearing the outstanding dues of the previous owner. The workers accepted the condition in the hope of getting the plantation back after a lot of hardship, said Uttam Saha, a leader of the Trinamool Workers Union. The opening of Dheklapara gave hope to the tea industry circles of North Bengal, as it was the revival of the garden, which had remained closed for the longest time. However, analysts warn that sustaining this recovery will require major investment and care-much of the factory's machinery has been stolen or destroyed, and tea plants have turned into wild forests, so it will take time and money to get to full production capacity. The new owners are currently focusing on the restoration and maintenance of the garden, giving workers 20 days of work, 8 hours a day (Telegraph, Dheklapara tea garden reopens after 23 years. Our Correspondent, 2025). The successes and failures of the crackdown will be a lesson for policymakers in the future[20].

Key observations: From the above case studies, some important points are clear:

(1) Administrative delays: In most of the plantations, years after the owners left, government intervention has started somewhere, in which the workers are in serious trouble.

(**2) Legal and policy complications**: Legal procedures such as cancellation of leases, issuing new leases, etc., are time-consuming, and many investors lose interest in the process.

(3) Political Will and Event-Driven Measures: Suddenly strong steps have been taken before any major political program or election (such as opening 3 gardens at once before the visit of the Honourable Chief Minister of 2025), which shows the lack of consistent planning.

(4) Compromise to protect the interests of the workers: In bringing in new owners, the government is waiving many fair dues of the workers or relaxing the laws (such as the condition of not paying the old dues and not giving the workers accommodation), which is weakening the legal rights of the workers.

(5) Problems going on: Some gardens are still closed (such as Lankapara and Turturi); that is, the whole crisis has not been solved yet. As of mid-2025, 5 of the 65 gardens in Alipurduar were still closed (Correspondent, Tea estate shuts over cash and pest peeves, 501 workers jobless in Alipurduar, 2025), though as many as 20 were closed before that (Mitra, 2024). That is, although many of the recent initiatives have been opened, some new gardens are getting sick. So, it's an ongoing process, where one group is opening gardens and the other is closing them unless major structural changes can be made.

Case Review:

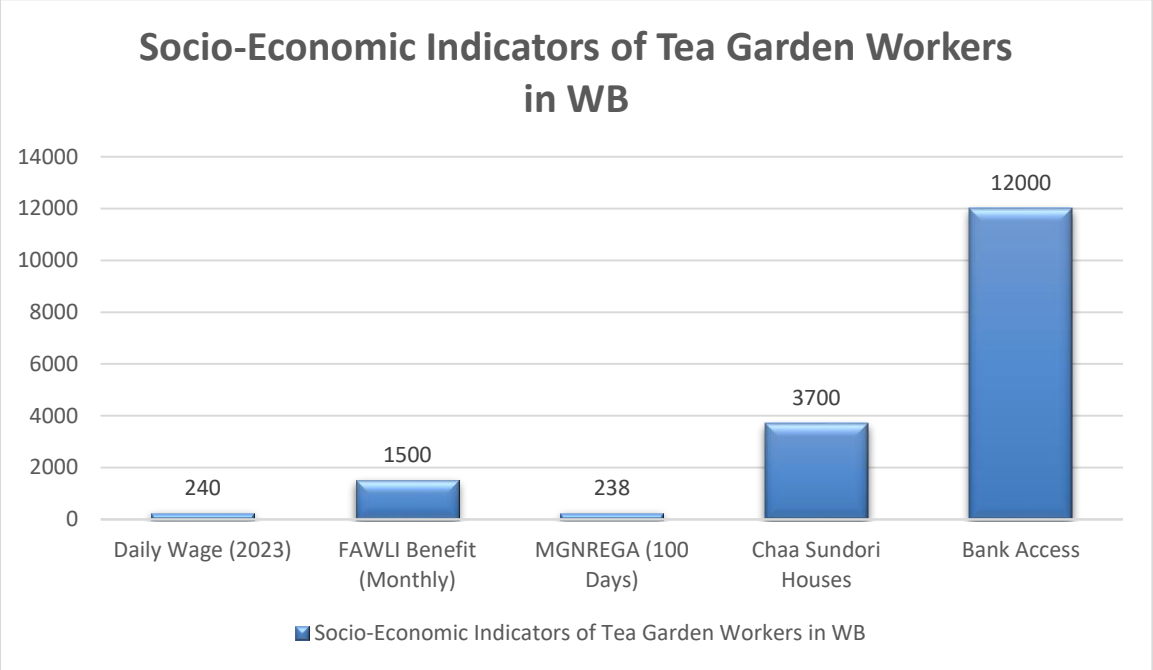
(1) Wages and social benefits: Wages and social benefits are a measure of the socio-economic status of tea workers. The daily cash wages were ₹232-250 in West Bengal till 2023 (almost the same in Assam), while the South Indian states were paying ₹400-₹450. According to the Minimum Wages Act, there is actually a higher wage for this work, but in West Bengal and Assam, due to lack of political will, the owners are paying less. As a result, the poverty rate of working families is very high, and the per capita income is far below the national average. While the closed garden workers are paid a FAWLI allowance of ₹1,500, the average family size of 4-5 members earns less than ₹10 per day which is grossly inadequate. For this reason, many of the workers in the closed plantations wanted to take advantage of the 100 days of work in MGNREGA, but not in an organized way in all places. In some areas, the district administration has provided temporary employment to workers engaged in road construction or cleaning work (for example, in some villages of the Dooars, workers were engaged in such work during 2020-21 when the gardens were closed due to Corona and lockdown)[21] (Mitra, 2024).

(2) Housing infrastructure and living conditions of the workers: Reviewing the housing infrastructure and living conditions of the workers, it can be seen that most of the tea garden labour line families live in century-old quarters or huts. About 3,700 new houses have been constructed by 2022 in the tea garden housing scheme of the state. But the problem is that in many cases these houses have been built in colonies far away from the garden area, so the working families did not want to go there. Initially, the family came to only 70 houses out of 500 built near the Torsha tea garden. According to the workers, their movement and livelihood will be difficult if the workplace is far from the settlement, especially for the elderly and women. So many houses of tea beauties are empty, or some have gone on rent. Learning from this failure, the government later decided to give Pattas to the workers on the land where they live in the tea garden and help them in repairing/renovating their houses (Mitra, 2024). One positive aspect of this is that since the workers want to stay in the garden for the convenience of work, their wishes have been respected[22].

(3) Bank credit and financial inclusion: Another important statistical aspect is bank credit and financial inclusion. As the workers did not have land or immovable property, they were deprived of the benefit of bank loans, as a result of which they fell into the clutches of private moneylenders. Now that some families have received the deed of the land, they will be able to take a loan with collateral in the bank, but small landholdings of 5 decimals will usually not qualify for as much credit in the bank valuation; this is also real. If the government makes a house on that land (like the housing scheme), then, of course, that house and land will create wealth, and the workers will be able to go to the financial institution (Post, 2023).

Overall, the statistics indicate that the scale of the problem is huge, millions of people are affected, but the government's actions have been isolated and slow. The recent activities (issuing pattas, issuing SOPs, reopening gardens) are being implemented under a lot of labour movement and political pressure. From the following charts and data, it is clear that if the government had taken a strong role from the beginning and cancelled the lease, implemented an alternative management system, and rehabilitated the workers in time, the loss of life and livelihood of so many people could have been minimized[23].

Clustered Chart No- 01



Source: West Bengal Labour Department Circulars (2021-2023), Ministry of Rural Development, govt of India; The Hindu (2022), Anandabazar Patrika (2022), District level interviews and NGO Report, The Telegraph (2023).

12. Policy Recommendation:

Based on the experience of the reclamation efforts of the tea gardens of Alipurduar described above, here are some policy recommendations that can be useful for land reform and labour welfare in the future.

(a) Legal recognition of tea worker's land: The government has already started giving 5 decimal land Pattas for workers' housing; it should be made more comprehensive and permanent. Every working family living in the tea garden area should be assured of the ownership of residential land, and if they have so far cultivated any fallow land adjacent to the garden (some garden workers have cultivated vegetables), their rights may be considered. Leases should be made as long-term or transferable as possible, rather than 30-year leases, so that workers feel secure. Besides, coordination should be made with banks and financial institutions to identify the leased land as collateral; otherwise, only paper land will not change their condition much (Mitra, 2024). Here it must also be ensured that the ownership of the land does not conflict with the main work (tea production) that is, the workers can do gardening and alternative work even if they want to own the land[24].

(b) Women's Land Rights and Empowerment: The provision of joint ownership (in the name of both husband and wife) or in the name of the elderly woman of the family should be strictly followed everywhere while issuing land pattas. This will increase the safety and security of women. Moreover, since women are the main workforce in the tea industry, the ownership of land is justified. Furthermore, each tea garden should have a separate cell or committee for women workers who will look after their special problems (such as maternity benefits, sanitation, and prevention of harassment) and advise the management. Women's leadership should be encouraged at the union and cooperative level for example, the government can help form women's cooperatives with training and a small amount of capital (like Konica Dhanwar's initiative) (Deb, 2023). With this, the women of tea gardens will also be able

to earn extra income by starting alternative economic activities (handicrafts, animal husbandry, tourism, etc.).

(c) Speedy Lease Cancellation and Rehabilitation Process: Immediate lease cancellation and government takeover should be implemented against the tea gardens that are closed beyond the stipulated time (currently 3 months) (the current SOP should be fully implemented) (Correspondent, Three tea gardens closed since 2023 with around 3,800 workers reopen in Alipurduar, 2025). The cancellation of the lease does not mean that the government will run the tea garden itself; rather, it can temporarily hand it over to the provisional management or the workers' cooperative until a suitable new investor is found. For example, in the state of Kerala, some tea gardens have been run successfully by worker's cooperatives. In West Bengal, production can also be run on a trial basis by worker's cooperatives or state task forces so that the gardens are not completely abandoned. By doing this, the employment of workers will also be maintained, and the resources of the garden will also be protected. When a new investor comes in, he must be forced to take some of the responsibility for paying the previous dues, otherwise the owners will tend to flee without punishment. The government should announce some incentives (tax breaks, subsidies) for new investors, provided that they meet a portion of the old dues and commit to running the garden for a minimum period[25] (at least 5 years).

(d) Labour Welfare and Social Security: Since most of the tea workers belong to the day labour class, it is necessary to have a special social security ring for them. The FAWLI scheme's allowance amount of ₹1500 has remained unchanged for many years-it needs to be increased in line with inflation (proposed to be ₹3000), and 100% of the workers must be covered by eliminating the discrepancies (paperwork, bank account complications) in the distribution of the allowance (WB: Workers' Wages Due, 5 Tea Estates in Alipurduar 'Abruptly Shuttered' Before Diwali, 2023). At the same time, it is necessary to coordinate with the Centre to bring the MGNREGA scheme to the tea garden areas so that the workers can earn at least minimum wages through basic work (soil cutting, road construction) during the shutdown or irregular work. For health and nutrition, community kitchens or anganwadi canters have to be kept active in every garden. Many closed gardens have been closed due to lack of staff. Feeding programs should be continued through schools and anganwadis so that children get food. The state government's "doorstep ration" scheme can also be implemented in tea gardens so that workers do not have to travel far to collect rations and are not left without rations in the absence of people from outside (such as during strikes).

(e) Modernization of the tea industry and alternative plan: Many tea gardens have lost productivity due to lack of investment over the years, and the owners are leaving the gardens on the pretext of loss. Under the joint initiative of the government and the Tea Board, the tea garden modernization project (planting new varieties of tea trees, irrigation system, and improving machinery) should be undertaken so that the gardens remain profitable. Also, some of the lands that are unfit or surplus for tea cultivation can be put to alternative use, such as tea tourism (homestays, tea resorts), perennial other fruits/crops cultivation, etc (Jha, 2021). However, local workers and the community must be prioritized. It should be mentioned in the terms of the land lease that if such an alternative trade takes place on the land of an orchard, then a part of the income will have to be spent on the welfare of the workers, and the local youth will have to be given employment. This will reduce the fear of the workers that the government will take away the land and give it to the tourist traders rather, the workers will be its partners.

(f) Institutional Coordination and Monitoring: A state-level coordination committee with all the departments and stakeholders related to tea gardens should be activated, which will collect regular information and identify which gardens are in a vulnerable state. The Revenue department of the garden and the district administration should be instructed that if the lease rent or government cess is pending for more than 6 months, they should issue a warning, and the labour department should keep the garden under surveillance. Trade unions and worker's representatives should also be included in this

process so that information is not hidden. Tripartite meetings should be organized and fruitful in time. 'Newsclick report' mentions that after the closure of Kalchini, etc., gardens, the Labour Department called for a meeting, but the employer did not come, so the solution was not found (NewsClick, 2023). In this case, the law should be amended to impose a fine or takeover of management against the absentee owner.

(g) Special initiatives for indigenous and local communities: The indigenous people of the tea garden areas are suffering from multidimensional deprivation. The state government has already created a special Tea Directorate through which some development projects are being carried out, but the tribal youth need special packages for higher education, jobs, and cultural protection. To make the path of education smooth from tea garden to university, hostels and scholarships should be increased, this will enable them to go for alternative employment in the future and reduce their dependence on gardens. At the same time, if the issues related to the recognition of their Scheduled Tribe status are resolved in coordination with the Center, then the confidence of the society will also increase. If tribal cultural centers and language schools are set up, the new generation will feel proud of their identity and will participate in the rights campaign. When they see that the government is really standing with them, the feeling of alienation that was being created in areas like Alipurduar will be removed.

(h) Development of a cooperative and worker ownership model: As a final recommendation, the government can establish a worker cooperative-driven model in 1-2 closed tea gardens on an experimental basis. The basic capital and technical know-how will be provided by the government/tea board, and the workers themselves will be the owners (each worker member will be the shareholder of the cooperative). If this model is successful, the workers will be able to run the plantations that will be ownerless in the future and share the profits. Of course, the tea industry is a competitive sector, and management skills are needed, so the cooperative needs to hire experts for training and care. But in this way at least it will be proved that workers are not "liabilities"; they can be converted into wealth if they get proper help. This model will also help women in leadership, as many women will play an important role in the society[26].

13. Concluding Observation:

It is clear from this case study of the reclamation of Alipurduar's tea estates that land reform is a complex, multi-layered challenge that involves historical injustices, administrative failures, and socio-economic conflicts. The tea workers of West Bengal have been neglected for many years. They had to fight for land rights, wages, and basic needs. In recent years, some of the government's initiatives (land leasing, closed garden SOPs, housing projects) have shown promise, but to make them sustainable and inclusive, the policy changes mentioned above must be considered. The land of tea gardens is not only the production area of cash crops but also the habitat and culture of thousands of people. The conflict over this land has transcended economic boundaries into an issue of human rights and social justice. So, when it comes to land reform, the administration needs to put people at the center, listen to the voices of workers and include their representatives, especially women and tribal leaders, in the decision-making process.

The experience of the entire Dooars region, including Alipurduar, shows that not only the text of the law but also political will, efficient administrative management, and participation of workers, these three efforts can provide a permanent solution to the long-standing crisis. The land reforms will be successful only when the tea workers can at least partially take control of their own destiny and come out of the circle of slavery. Hopefully, the government policymakers will realize this reality and take quick and effective steps so that the tea gardens of West Bengal become truly green and smiles appear on the faces of all the workers, including the tribal women.

References:

1. Bhattacharya, P. (2024). Stories of the Dooars Women Tea Garden Workers. *Journal of Social Inclusion Studies*, 1, pp-76-78

2. Bhattacharya, P. P. (2016). Another tea garden closed in Dooars. The Times of India. *The Times of India*, pp- 8-10

3. Bhowmik, S. K. (2015). Living Labour: Tea Garden Workers in West Bengal. New Delhi: Oxford University Press. *New Delhi: Oxford University Press, pp-102-105*

4. BISTA, S. R. (2022, July 27). GOVERNMENT OF INDIA. *CLOSURE OF TEA GARDENS*. India, pp-201-202

5. Chhetri, V. (2023, September 11). *India: Protests arise as tea workers demand rights to entire land owned by them for generations, object 5-decimal cap in Govt. notification*. Retrieved from Business & Human Rights Resource Centre: https://www.business-humanrights.org/en/latest-news/india-protests-arise-as-tea-workers-demand-rights-to-entire-land-owned-by-them-for-generations-object-5-decimal-cap-in-govt-notification/, pp- 360-362

6. Correspondent, O. (2025, June 8). *Tea estate shuts over cash and pest peeves, 501 workers jobless in Alipurduar*. Retrieved from The Telegraph Online: https://www.telegraphindia.com/west-bengal/tea-estate-shuts-over-cash-and-pest-peeves-501-workers-jobless-in-alipurduar-prnt/cid/2106725#:~:text=The%20workers%20said%20that%20they,paid%20on%20a%20fortnightly%20basis, pp-4-6

7. Correspondent, O. (2025, January 21). *Three tea gardens closed since 2023 with around 3,800 workers reopen in Alipurduar*. Retrieved from The Telegraph Online: https://www.telegraphindia.com/west-bengal/three-tea-gardens-closed-since-2023-with-around-3800-workers-reopen-in-alipurduar/cid/2078651, pp-2-3

8. Deb, R. (2023, July 16). *The mismatch in land demand vs land policy in West Bengal's tea gardens*. Retrieved from Centre for Financial Accountability: https://www.cenfa.org/the-mismatch-in-land-demand-vs-land-policy-in-west-bengals-tea-gardens/#, pp-10-12

9. Facebook. (n.d.). *No Freehold Rights for Tea Garden Lands, Only Lease for Tea tourism and Local employment West Bengal Chief Minister Mamata Banerjee has*. Retrieved from https://www.facebook.com/lankaparatimes/videos/no-freehold-rights-for-tea-garden-lands-only-lease-for-tea-tourism-and-local-emp/467595412974594/

10. *First land title deeds given to tea garden workers in West Bengal*. (2023, February 22). Retrieved from Business & Human Rights Resource Centre: https://www.business-humanrights.org/en/latest-news/first-land-title-deeds-given-to-tea-garden-workers-in-west-bengal/#:~:text=land%20we%20live%20on%2C%20thanks,to%20the%20tea%20garden%20workers, pp-8-12

11. Ghosal, S. (2011). MARS Group acquires 5 closed tea estates. *The Economic Times*, pp-2-4.

12. Ghosh, A. K. (2022, November 20). *Crisis in Tea Industry of West Bengal–1*. Retrieved from https://frontierweekly.com/articles/vol-56/56-1/56-1-Crisis%20in%20Tea%20Industry%20of%20West%20Bengal%E2%80%931.html#:~:text=the%20other%20hand%2C%20was%20an,Today%20the, pp-55-56.

13. Jha, R. K. (2021, March 24). *In India's tea estates, next generation of pickers want land, not jobs*. Retrieved from Reuters: https://www.reuters.com/article/world/

in-indias-tea-estates-next-generation-of-pickers-want-land-not-jobs-idUSKBN2BG03H/#:~:text=But%20as%20the%20young%20people,are%20watching%20from%20the%20sidelines, pp-23-25.

14. Mitra, A. (2024, April 18). *In Bengal's tea belt an unsavoury brew — lack of jobs, land issues and migration*. Retrieved from The Indian EXPRESS: https://indianexpress.com/about/express-premium/?ref=ll_home, pp-21-28.

15. NewsClick. (2023, October 20). *WB: Workers' wages due, 5 tea estates in Alipurduar 'Abruptly Shuttered' Before Diwali*. Retrieved from NewsClick: https://www.newsclick.in/wb-workers-wages-due-5-tea-estates-alipurduar-abruptly-shuttered-diwali#:~:text=Vikas%20Mohali%2C%20a%20tea%20garden,temporary%20workers%20had%20been%20hit, pp-1-3

16. Pandey, S. (2014, September 5). *India's starving tea-garden workers*. Retrieved from ALJAZEERA: https://www.aljazeera.com/features/2014/9/5/indias-starving-tea-garden-workers#:~:text=India%27s%20starving%20tea,in%20Bundapani%2C%20Dheklapara%2C%20Redbank%2C, pp-20-21.

17. Post, M. (2023, February 22). *First land title deeds given to tea garden workers in West Bengal*. Retrieved from Business & Human Rights Resource Centre: https://www.business-humanrights.org/en/latest-news/first-land-title-deeds-given-to-tea-garden-workers-in-west-bengal/#:~:text=Finally%2C%20the%20long%20wait%20ended,to%20the%20tea%20garden%20workers, pp-9-10.

18. Pramanik, A. K. (2023). Crisis in Tea Industry of West Bengal–1. Frontier Weekly, 56(1). *Frontier Weekly*, pp- 56.

19. Prasad, T. S., & Ponnusamy, V. D. (2016, August 01). GOVERNMENT OF INDIA. *Tea Gardens in Assam and West Bengal*, pp-65-66.

20. Singh, G. (2024, June 7). *India, tea garden brews tales of apathy and neglect by politicals*. Retrieved from LIFEGATE/ Daily: https://www.lifegate.com/tea-garden-workers, pp-82-84.

21. Srivastava, R. (2021, March 24). *In India's tea estates, next generation of pickers want land, not jobs*. Retrieved from Reuters: https://www.reuters.com/, p-5

22. Talwar, A. C. (2023). Talwar, A., ChaClosed Tea Gardens in North Bengal: A Case Study of Workers' Lives. *Frontier*, pp-52-53

23. Telegraph, T. (2025, April 25). *Dheklapara tea garden reopens after 23 years. Our Correspondent*. Retrieved from The Telegraph Online: https://www.telegraphindia.com/west-bengal/dheklapara-tea-garden-reopens-after-23-years-prnt/cid/2095895, p-4

24. Telegraph, T. (2025, June 8). Tea estate shuts over cash and pest peeves, 501 workers jobless in Alipurduar. Our Correspondent. *The Telegraph Online*. Retrieved from https://www.telegraphindia.com/west-bengal/tea-estate-shuts-over-cash-and-pest-peeves-501-workers-jobless-in-alipurduar-prnt/cid/2106725, p-6

25. Telegraph, T. (2025, January 21). *Three tea gardens closed since 2023 with around 3,800 workers reopen in Alipurduar. Our Correspondent*. Retrieved from The Telegraph Online: The Telegraph (2025a, January 21). Three tea gardens closed since 2023 with around 3,800 workers reopen in Alipurduar. Our Correspondent, p-2

26. WB: Workers' Wages Due, 5 Tea Estates in Alipurduar 'Abruptly Shuttered' Before Diwali. (2023, November 09). Retrieved from Newsclick: https://www.newsclick.in/wb-workers-wages-due-5-tea-estates-alipurduar-abruptly-shuttered-diwali#:~:text=At%20a%20time%20when%20the,Mujnai%20tea%20plantation%20are%20jobless, p-3

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IDENTITY-BASED AUTONOMY MOVEMENT IN NORTH BENGAL: THE CASE OF GREATER COOCH BEHAR

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Abstract

Identity-based autonomy movements have been a persistent phenomenon in postcolonial Indian politics, and the North Bengal region is no exception, with various movements launching in the region demanding political autonomy or a separate state. The Greater Cooch Behar movement is unique in that it is based on historical grievances, constitutional rights, and an identity crisis within the region's indigenous Rajbanshi identity. The paper highlights that the Greater Cooch Behar movement encompasses more than merely claiming autonomy or territory; it also involves asserting political recognition, preserving cultural identity, and addressing historical injustices. The core argument of this movement is based on the controversial merger of the former princely state of Cooch Behar and West Bengal in 1950, which movement leaders claim violates the terms of the Instrument of Accession (1949). This constitutional narrative provides a framework for this movement to argue for Greater Cooch Behar through the lens of legality and democratic rights, rather than secession. This paper will examine the demand for a Greater Cooch Behar state through the lens of identity politics and autonomy.

Keywords: Identity Politics, Autonomy Movements, Greater Cooch Behar, Rajbanshi Identity, North Bengal, Indian Federalism, Ethnic Mobilization**.**

Introduction

Identity politics has played a major role in driving autonomy movements across the world, especially in India, where varied ethnic, linguistic, and cultural identities have often sought greater political legitimacy and self-governance. And autonomy can be understood as a sign of the increasing patterns of new political spaces that talk about rights and justice, as well as the basis for these rights. Different kinds of autonomy are, in fact, varied forms of contestations, presenting new possibilities for freeing democracy from prevailing power structures and ensuring a restructuring of society. Resistance to the state's power and demand for autonomy are currently encountered across various sections of society, including women, ethnic groups, classes, and so on. Partha Chatterjee, an eminent scholar who has studied the concept of autonomy, invented the term 'politics of the governed,' which clearly focuses on the relationship between ruler and ruled. It represents politics, which, in the face of apparent governmental power, can demand autonomy for itself (Chatterjee, 2004). Another notable scholar, Ranabir Samaddar, stated that autonomy is one of the key concepts of reorganizing society and creating a dialogic zone for negotiating autonomies. Raising the claim for autonomy is the most effective method to challenge constitutional essentialism and bring the discussion agenda to the forefront (Samaddar, 2005: 10-11).

The demand of ethnic groups ranges from greater autonomy and political, cultural, and economic empowerment to the assertion of the right to self-determination, self-governance, and political recognition either through the formation of a separate state within the Indian Union or a sovereign homeland separate from

India (Datta, 1988: 517). The autonomy movement in India has employed various tactics and strategies to achieve their objective, such as insurgency, militant, *dharna*, *rail roko*, *haratal*, *band*, *gherao*, and peaceful negotiations. These strategies have evolved based on the movement's leadership, political climate, and state response. These strategies are very crucial for analysing the success or failure of autonomy movements in the Indian context.

Many separatist forces have formed in North Bengal overtime, with demands and shouts that seemed to be a desperate attempt to establish a distinct ethnicity against the backdrop of long-standing exploitation and discrimination in society. Similar to the way water flows in different directions after a dam bursts, the blocked ethnicity finds a way to be displayed up in various forms. The demand for a separate state has become an ethnic sentiment (Nag, 2023: 15-17). The Greater Cooch Behar movement has persisted for a long time as an autonomy movement. At various stages this movement has been nurtured under the umbrella of many organisations. The Greater Cooch Behar Peoples Association (GCPA) is the movement's main organization. The Rajbanshi community's long-standing social-political-cultural domination and subjection have given rise to new dimensions in the movement. The Rajbanshis are Northern Bengal's indigenous people and the province's third largest Hindu caste. The term Rajbanshi literally refers to a royal community or royal blood. For a long time, the Rajbanshi community ruler/king ruled over the Kamtapur region. The Rajbanshis were mainly settled in the Cooch Behar and Jalpaiguri districts of North Bengal. The subjects of Cooch Behar were divided into two groups: *Deshi* and *Bhatias*. The Rajbanshis (*Deshis*) raised the question of their right to be 'sons of the soil'. The *Deshis* believed that the *Bhatias* had made them impoverished, and therefore called for the expulsion of the *Bhatias* from Cooch Behar. The Rajbanshis strongly supported the preservation of the Kamtapuri/Rajbanshi language, considering it distinct from Bengali. On the other hand, the *Bhatias* were likely to adopt Bengali as their primary language, leading to fears of losing their cultural heritage.

Objectives of the Study

Objectives of the study seek to address following:

- To examine the background and present circumstances of the Greater Cooch Behar movement for a separate state.
- To assess the role of Rajbanshi identity in the Greater Cooch Behar movement.
- To examine the key factors contributing to the emergence of the Greater Cooch Behar movement.
- To analyse the public perception and mass involvement in the Greater Cooch Behar movement.

Review of Literature

mined the Greater Cooch Behar movement from the perspectives of identity formation, regionalism, and the struggle for autonomy. Sukhbilas Barma (2007) examines the various socio-political movements that have shaped the Sub-Himalayan region of North Bengal over the past century. He noted that the objective of separating from West Bengal and forming a separate independent Greater Cooch Behar state is not limited merely to political or administrative division; rather, it also involves creating ethnic and linguistic divisions among the people of the same region, particularly between the *Deshi* and *Bhatia* communities. Rup Kumar Barman (2007) deals with a critical examination of the primary discourses surrounding various forms of regionalism in colonial and postcolonial India. He focuses on the processes of cultural transformation that produced the regional aspirations of North Bengal and Lower Assam. It also explores the root causes of regionalism and critically evaluates the legitimacy of regionalist issues in the light of globalization, providing an informed view of how regional identities continue to evolve in contemporary India. Sumit Mukherjee and Oli Mohammad (2015) examine the emergence of political movements and militant activities in North Bengal and Assam, with special reference to the Greater Cooch Behar and Kamtapur movements. Presents a comparative analysis of these two militant movements, offering a critical evaluation of their origins, objectives, and

consequences. Sailen Debnath (2016) focuses on the socio-cultural origins of the Koch-Rajbanshi identity, their religious life in earlier times, and their political movements in both the past and the present. The author analyses the process of caste mobilization among the Koch-Rajbanshi community and underlines the major role of Thakur Panchanan Barma in this transition. Samir Kumar Das (2018) critically analyses North Bengal as a major historical migratory route and highlights the long history of continuous population movement in the region. He argues that many of the region's current challenges stem from an incomplete settlement process, which has given rise to multiple notions of homeland.

Research Methodology

The present study undertaken is explanatory in nature and it is done on the basis of qualitative and quantitative research techniques. This study based on both Primary and Secondary data. Primary resources consist of fieldwork, government reports, and library/archival study of most of the newspapers published at the regional and national levels, while secondary sources consist of books, articles, journals, and other relevant literature. The field study area, which is Dinhata, Mathabhanga, Sitalkuchi, and Cooch Behar-I. A purposive sample was used in the course of the study. The data was gathered using a closed-ended questions. The sample size was an eighty (80). Personal and group (focus group) interviews have been conducted with members of the GCPA, local peoples (Rajbanshi), and local politicians.

Demand for Greater Cooch Behar and Formation of GCPA

The demand for a separate 'Greater Cooch Behar' comprising Cooch Behar, Darjeeling, Jalpaiguri, North and South Dinajpur and the undivided Goalpara districts of Assam is based on the claim that the original merger agreement between the Maharaja of Cooch Behar and the Government of India was ignored during the accession of Cooch Behar to India in 1949. The Cooch Behar princely state was merged with the Dominion of India as a Chief Commissionerate on 12 September 1949 and became a district of West Bengal on 1 January 1950. The GCPA, founded on 9 September 1998 at Khagrabari Primary School, is spearheading the movement for a separate state of Rajbanshi. The organisation was initially established with three objectives, namely, appointing Kumar Anilendra Narayan as the Chairman of the Cooch Behar Debuttor Trust Board as a descendant of the Cooch Behar dynasty; preserving the culture and historical monuments of Cooch Behar; and including the history of Cooch Behar at all levels of education (Das, 2018: 165).

The GCPA's demands, as set out in their memorandum to the union home minister on June 18, 2005, and their booklet '*Danga Kuchbihar Basir Koyta Katha*' (Some Proposals of the People of Cooch Behar), demanded that the accession guidelines be implemented, which would leave Cooch Behar as a C-category state. The agreement highlighted the issues of history, tradition, language and culture of the people of Cooch Behar, as well as community harmony and the promise of the rights of the indigenous peoples to food, shelter, health and education; hence, their slogan is '*Kuchbiharer Bharat Bhukti Chukti Kuchbihar Basir Mukti*' (The instrument of accession is the liberation of the people of Cooch Behar) (Barma, 2007: 365).

On 20 September, 2005 an agitation for statehood led by the GCPA took a nasty turn. The GCPA called for a hunger strike in front of the Cooch Behar District Collector's Office to demand separate statehood. The agitators demanded that assembly election not be held in Cooch Behar. They wanted the formation of an interim caretaker government by the center. More than 20,000 people gathered in various location outside Cooch Behar town to embark on an indefinite hunger strike. The leader of the present agitation Bangshi Badan Barman went to jail after an ugly flare-up in 2005 for the Greater Cooch Behar statehood movement. The 56 men were arrested for their role in the violence that erupted around a meeting of the GCPA in Chakchaka (Roy, 2019: 246-249). The GCPA is also conducting a simultaneous hunger strike with 80 activists at Delhi's Jantar Mantar on 2011. Trouble erupted on 21 February, 2016, alongside a 'Rail Roko', and thousands of supporters squatting on the lines at the New Cooch Behar station, wanting that the Greater Cooch Behar. This time, police sprang into action just after 72 hours of protests, which

not only hampered rail services in North Bengal and Assam, yet also left three trapped passengers dead. Police have taken into jail at least 15 leaders of the GCPA (*The Indian Express*, 2016). The protest on 11 December, 2024 at the Tufanganj Jorai Railway Station, with two key demands: the fulfilment of the 1949 separate statehood claims under the India Accession Treaty and the recognition of the Rajbanshi language as the eighth scheduled language in the Indian Constitution (*The Week*, 2024).

Analysis and Discussion-Understanding public perception regarding the movement is essential in assessing its legitimacy, challenges, and future prospects. Public reaction to the movement has been diverse, ranging from staunch support by local communities advocating for recognition and autonomy. This section explores the public observation of the Greater Cooch Behar Movement by examining various stakeholders, including local residents, members of the GCPA, experts and local politician.

Table 1: Support Base of the Greater Cooch Behar Movement (n=80)

Support this movement	No. of Respondent	Per cent
Yes	73	91.25
No	7	8.75

Source: Field Survey, 2023.

It was observed through the interaction with people, 91.25 Per cent respondents supported the movement directly or indirectly and 8.75 per cent peoples express that they do not support the movement (see Table1).

Table 2: Reason for Supporting Greater Cooch Behar (n=80)

Reason to support the movement	No. of Respondent	Per cent
Constitutional Right	7	8.75
Victory	34	42.50
Preservation of Language, Culture and Heritage	16	20
Employment	16	20
Others	7	8.75

Source: Field Survey, 2023.

Table 2 shows that the 8.75 per cent respondents to support the movement for constitutional right. 42.50 per cent respondent believe that the one-day Greater Cooch Behar will be formed. 20 per cent of respondents demanded that the recognition of the Rajbanshi/Kamtapuri language in 8th Scheduled of the Indian Constitution and preserve their historical glory and culture. 20 per cent of respondents respond that the lack of employment opportunity. 8.75 per cent respondents believe that others factors are involved for support the movement.

Table 3: Causes Responsible for the Greater Cooch Behar movement (n=80)

Factors behind the Resurgence of the Greater Cooch Behar Movement	No. of Respondent	Per cent
Underdevelopment	8	10
Ethnic identity crisis of the Rajbanshi Community	9	11.25
Economic Disparity	7	8.75
Wrong policies by the Government	8	10
Merger of Cooch Behar with West Bengal on 1950	4	5
All of the above	44	55

Source: Field Survey, 2023.

The respondents were asked to choose from six options to identify the factors responsible for the Resurgence of the Greater Cooch Behar movement. 10 per cent of the respondent's reply that the underdevelopment. 11.25 per cent of the respondent believed that the origin of the separate state movement was a cause of the ethnic identity crisis of the Rajbanshi community. 8.75 per cent of the respondent considered the economic disparity between North and south Bengal has been a persistent issue. They claim that, while South Bengal has historically been the economic and administrative hub of the state, on the other hand, North Bengal has often lagged in terms of industrialization, infrastructure and socio-economic opportunities. 10 per cent of respondent think that the implementation of government policies in this region is wrong. 5 per cent believe that the main reason for the Greater Cooch Behar Movement was the merger of Cooch Behar with West Bengal in 1950. In spite of that, a majority of 55 per cent of respondent opinion that all the above-mentioned points are equally responsible for the separate statehood movement for the Rajbanshi Community (see Table 3).

Table 4: Impression of the GCPA Leadership in North Bengal (n=80)

Influence of GCPA in North Bengal Region	No. of Respondents	Per Cent
Massive	37	46.25
Marginal	22	27.5
Substantial	21	26.25

Source: Field Survey, 2023.

Presently, the GCPA organization is split into three faction, one faction is Anant Maharaj, originally known as Nagendra Ray, the supreme leader of the Greater Cooch Behar People's association. He announced himself as a '*Maharaj*' of the Rajbanshi community. Second faction is Bangshi Badan Barman, GCPA leader, and currently chairman of the West Bengal Rajbanshi Development and Cultural Board. Third faction is Shariful Islam, secretary of the new GCPA faction, stated that, "We have been with GCPA since its inception. However, over the years, Ananta Maharaj has built a palace for himself, and Bangshibadan as chair of the development board didn't do anything for ordinary Rajbanshi people although the state gave funds. That is why we severed ties with them and will take up our demands with the state government" (*The Telegraph*, 2022). The new faction has raised initiating the recruitment of the Rajbanshis to the Narayani Battalion of the state police, allocating additional funds to the development board, and introducing Rajbanshi as a compulsory language in schools, colleges, and universities of Cooch Behar. From table 4, it follows that, the influence of GCPA leadership in North Bengal is massive level in 46.25 per cent, marginal level in 27.5 per cent, and substantial level in 26.25 per cent.

Conclusion

This study has examined the Greater Cooch Behar movement as a sustained identity-based autonomy movement rooted in historical experience, socio-economic marginalisation, and constitutional contestation. Empirical evidence from the field survey reveals overwhelming popular support for the movement, with more than ninety per cent of respondents expressing direct or indirect sympathy. This support is not driven by a single factor; rather, it emerges from a convergence of underdevelopment, economic disparity, identity insecurity, and dissatisfaction with state policies. The study further establishes that the Greater Cooch Behar movement is deeply embedded in the identity crisis of the Rajbanshi community. The perception of cultural marginalisation, linguistic neglect, and loss of indigenous status has generated a strong collective consciousness among Rajbanshis.

The study also highlights the role of uneven development within West Bengal in intensifying regional alienation. The persistent economic gap between North and South Bengal has produced a sense of relative deprivation among the people of North Bengal. These material inequalities interact with identity-based grievances, transforming socio-economic

frustration into political mobilisation. GCPA continues to be the foremost institutional actor in terms of expressing and mobilizing the movement at the organizational level. Despite internal factionalism and leadership disputes, the GCPA continues to exert considerable influence over the political imagination of the region. The persistence of the movement suggests that administrative measures alone are insufficient to address its demands. A durable resolution requires a comprehensive approach that combines cultural recognition, equitable development, political inclusion, and constitutional dialogue.

References

Barma, S. (2007). "Greater Kuch Bihar: A utopian movement?" In S. Barma (Ed.), *Socio-political movements in North Bengal: A sub-Himalayan tract*. Global Vision Publishing House.

Barma, S. (Ed.). (2007). *Socio-political movements in North Bengal: A sub-Himalayan tract*. Global Vision Publishing House.

Barman, R. K. (2007). *Contested regionalism: A new look on the history, cultural change, and regionalism of North Bengal and Lower Assam*. Abhijeet Publications.

Chatterjee, P. (2004). *The politics of the governed: Reflections on popular politics in most of the world*. Columbia University Press.

Das, S. K. (2018). *Migrations, Identities and Democratic Practices in India*. Routledge.

Datta, P. K. (1988). "Separatism in Indian Politics." *The Indian Journal of Political Science*, Vol. 49, No. 4, pp. 517-536.

Debnath, S. (2016). *The Koch-Rajbanshis: From Panchanan to the Greater Cooch Behar movement*. AAYU Publications.

Mukherjee, S., & Mohammad, O. (2015). *Rebels of Kamrup: A search for identity among Ahoms and Rajbanshis*. A. P. H. Publishing Corporation.

Nag, S. (2023). *Bichhinatar Utsa Sandhane: Uttarbanga Theke Uttarpurbe*. Ekhon Duars.

Roy, H. (2019). *Gana Andolone Cooch Behar*. Ekhon Dooars.

Samaddar, R. (Ed.). (2005). *The Politics of Autonomy: Indian Experiences*. Sage Publications.

The Indian Express. (2016, February 25). *Simply put: What's behind the protests, rail roko in North Bengal?* https://indianexpress.com/article/explained/simply-put-whats-behind-the-protests-rail-roko-in-north-bengal/.

The Telegraph. (2022, December 13). *Third GCPA faction raises demands*. https://www.telegraphindia.com/west-bengal/third-greater-coochbehar-peoples-association-faction-raises-demands/cid/1903554.

The Week. (2024, December 11). *West Bengal: Separatist outfit renews call for Cooch Behar state; holds 'rail roko' stir*. https://www.theweek.in/news/india/2024/12/11/west-bengal-separatist-outfit-renews-call-for-coochbehar-state-holds-rail-roko-stir.html.

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AN OVERVIEW OF TRENDS, PATTERNS AND REGIONAL DISTRIBUTION OF BAMBOO PRODUCTION IN INDIA

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Abstract

Bamboo is a key renewable resource supporting ecological sustainability, rural livelihoods, and the green economy in India. This study analyses trends in bamboo-bearing areas between ISFR 2021 and ISFR 2023, examining regional distribution and disparities across states. Findings reveal an overall national increase but significant regional variation, with strong growth in states like Arunachal Pradesh, Madhya Pradesh, and Odisha, while others, such as Karnataka, Tamil Nadu, and Telangana, show notable declines. The North-East and central India remain dominant bamboo regions, whereas northern and western states continue to have minimal bamboo resources. The study stresses the need for targeted policy responses, improved management, and strengthened value chains to achieve balanced regional development and sustainability within the bamboo sector.

Keywords: Bamboo production, ISFR 2021–2023, regional disparities, National Bamboo Mission, Trends

1. Introduction

Bamboo, a fast-growing perennial grass with over 1,400 species worldwide, has emerged as a critical natural resource with ecological, economic, and cultural significance. Globally, bamboo forests cover an estimated 31.5 million hectares, supporting the livelihoods of nearly 2.5 billion people through diverse uses in food, shelter, handicrafts, and industrial products (Wu et al., 2015; Nath et al., 2020). In recent decades, bamboo has gained attention not only as a traditional material but also as a renewable substitute for timber, plastics, and high-emission construction materials, aligning it with global sustainability agendas (Liese & Köhl, 2015; Canavan et al., 2016). In India, with more than 136 species across varied ecological zones, bamboo accounts for nearly 12.8% of global resources and has been positioned as a key driver for rural development, industrial diversification, and climate mitigation (Sapovadia, 2023; Patel, 2024).

The ecological role of bamboo extends far beyond its rapid growth. Bamboo a fast growing, multi-purpose grass is increasingly recognised as a strategic natural resource that links rural livelihoods, industrial raw-material security and environmental sustainability. International agencies and research organisations note bamboo's contributions to land restoration, biodiversity conservation, climate mitigation (through rapid carbon sequestration), and disaster-resilient construction making it directly relevant to multiple UN Sustainable Development Goals (SDGs). Studies demonstrate that bamboo plantations contribute significantly to carbon

sequestration, with certain species, such as *Phyllostachys pubescens*, outperforming conventional tree species in terms of annual carbon uptake (Li et al., 2021; Liu et al., 2019). Additionally, bamboo products ranging from engineered scrimber boards to textiles store carbon ex-situ, extending sequestration benefits beyond forest ecosystems (Gu et al., 2019; Van der Lugt & Vogtlander, 2015). Bamboo's perceived potential in livelihood development has led to development interventions that aim to strengthen the bamboo industry via activities such as training participants in bamboo management, strengthening institutions, and raising awareness (Binfield et.al.,2025).

In India, the central government has moved from piecemeal support to an explicit, mission-oriented approach. The restructured National Bamboo Mission (NBM) aims to expand the area under bamboo on non-forest lands, strengthen planting material and nursery networks, develop treatment/processing capacity and create market linkages to raise farmer incomes and reduce import dependence. State governments and other central schemes put the market-building pieces in place. Examples include the Ministry of MSME's SFURTI cluster approach for bamboo and cane handicraft/furniture clusters, export facilitation and standards work through agencies such as APEDA/DGFT, and state-level industrial policies (for example, the Jharkhand MSME Promotion Policy 2023 encourages bamboo-based industries through incentives and support and the Mukhya Mantri Ajeevika Samvardhan Yojana) that promote traditional crafts like those involving bamboo to scale production and manufacturing. Taken together, these programmes helping farmers grow bamboo, building local clusters, improving processing facilities, and opening market and export opportunities form the foundation of India's efforts to turn bamboo's environmental benefits into real economic gains for people and communities. Despite this potential, India's bamboo sector continues to face constraints, including fragmented value chains, inadequate industrial processing infrastructure, and a lack of standardized data on productivity and yields (Dwivedi et al., 2019; Kumar et al., 2020). These challenges necessitate a systematic study of production trends, regional disparities, and pathways for sustainable development. This paper addresses these issues by situating bamboo within India's developmental priorities and examining its potential through ecological, economic, and governance lenses.

2. Literature Review

2.1. Ecological Significance and Carbon Sequestration

Bamboo's ecological attributes, rapid growth, high regrowth capacity, and substantial biomass accumulation make it a unique renewable resource (Wu et al., 2015; Zhou & Jiang, 2004). Remote sensing studies have quantified bamboo's aboveground biomass, demonstrating annual sequestration rates exceeding many hardwood species (Xu et al., 2016; Feng et al., 2023). Comparative studies in China, Vietnam, and India have confirmed bamboo's higher sequestration potential relative to Masson pine, Chinese fir, and eucalyptus under managed systems (Xiao et al., 2007; Jiang et al., 2011; Yen & Lee, 2011). In addition to in-situ benefits, bamboo contributes ex-situ carbon storage when processed into long-lived products such as flooring, panels, and laminates (Gu et al., 2019; Van der Lugt & Vogtlander, 2015). These studies affirm bamboo's dual role as both a carbon sink and a sustainable raw material for low-carbon industries (Pan et al., 2023; Ge et al., 2018).

2.2. Bamboo Management and Economic Models

The economic viability of bamboo plantations depends heavily on management practices. Wu et al. (2015) showed that land expectation values (LEV) differ significantly between stem-only and stem-plus-shoot management models, with the latter yielding higher returns but greater sensitivity to labour costs. Policy interventions, such as carbon credits or concessional financing, have been modelled to substantially enhance farmer incomes and encourage sustainable bamboo expansion (Wu et al., 2015; Rao et al., 2019). Evidence from Zhejiang, China, and other regions illustrates that optimised management can triple culm harvests and simultaneously expand carbon sequestration, making bamboo both a livelihood and climate asset (Xu et al., 2024; Tang et al., 2012). Yet in India, despite policy shifts like the National Bamboo Mission, farmers face barriers of credit, market information, and extension support, which

constrain uptake of improved models (Kumar et al., 2020; Gupta et al., 2018)

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2.3. Product Diversification and Industrial Applications

Industrial research highlights bamboo's versatility across construction, textiles, composites, and bioenergy. Life cycle assessments demonstrate that bamboo scrimber flooring can achieve a net negative carbon footprint due to embedded carbon storage outweighing emissions from processing (Gu et al., 2019). Similarly, engineered bamboo beams and laminates are promoted as viable substitutes for steel and cement, offering both environmental and mechanical advantages (Song et al., 2017; Lee et al., 2020). In textiles, bamboo fibres offer potential alternatives to cotton and polyester, although environmental performance varies between mechanically extracted fibres and chemically produced viscose (Patel, 2024; Chaowana & Barbu, 2019). Sapovadia (2023) further emphasises bamboo's role in circular economy strategies, including biodegradable products and bioenergy from residues. Nevertheless, inadequate industrial scaling and lack of standardised quality control hinder bamboo's integration into mainstream markets (Manandhar et al., 2019; Nath et al., 2020).

2.4. Socio-Economic Contributions and Livelihoods

Bamboo remains integral to the subsistence and economic systems of millions of rural households, particularly in Asia's tribal and forest-dependent communities (Wu et al., 2015; Farrelly, 1984). Studies in North-East India highlight bamboo's multiple functions: construction, food, handicrafts, but also reveal limitations such as irregular raw material flows, low-margin artisanal production, and limited capital access (Singnar et al., 2021; Patel, 2024). Gendered dimensions are equally important. Women dominate weaving and craft production, but benefit capture is constrained by unequal access to finance and markets (Gupta et al., 2018; Patel, 2024). Institutional interventions such as cooperatives, community forest enterprises, and common facility centres have been suggested as mechanisms to strengthen bargaining power, enhance product quality, and expand incomes (Xu et al., 2024; Nath et al., 2020). However, few impact evaluations exist to demonstrate sustained improvements in household welfare (Dwivedi et al., 2019).

2.5. Governance, Value Chains, and Policy Dimensions

Despite widespread recognition of bamboo's potential, policy and governance barriers remain significant. Production data are inconsistent, with few species-specific yield tables or standardised productivity assessments (Liese & Köhl, 2015; Wu et al., 2015). Spatial mismatches between bamboo resource bases and industrial hubs inflate logistics costs and weaken profitability (Xu et al., 2024; Bal et al., 2012). Scholars highlight the need for policy innovations such as grading standards, concessional financing, and carbon credit integration to align bamboo with national climate and industrial policies (Rao et al., 2019; Sapovadia, 2023). Experiences from China suggest that integrated policy frameworks combining forest management with market incentives can rapidly expand both ecological and economic benefits (Du et al., 2018; Qi et al., 2022). For India, replicating such frameworks remains a challenge, as fragmented governance and uneven state-level strategies limit sectoral growth (Kumar et al., 2020; Nath et al., 2020).

2.6. Monitoring, Data Systems, and Research Need

Across all studies, the inadequacy of robust monitoring frameworks is a recurring theme. While global bamboo cover is extensive, national-level productivity and disturbance data remain sparse (Wu et al., 2015; FAO, 2007). Advances in remote sensing and machine learning show potential for large-scale AGB mapping and sustainable harvest planning (Xu et al., 2024; Feng et al., 2023). Yet, methodological inconsistencies, lack of standardised yield tables, and weak MRV frameworks for ex-situ carbon in products prevent bamboo from being fully integrated into climate finance and policy mechanisms (Gu et al., 2019; Pan et al., 2023). Scholars argue for harmonised accounting protocols, standardised LCA methodologies, and

integration of community-level data to enable evidence-based policy and sustainable management (Ge et al., 2018; Liu et al., 2019).

3. Research Gaps

Although bamboo has been widely studied for its ecological, economic, and livelihood benefits, significant gaps remain in the Indian context. Current research lacks standardised, species-specific yield tables and large-scale monitoring frameworks, limiting accurate estimates of productivity and sustainable harvest levels. While life cycle assessments show that bamboo products can deliver carbon-negative outcomes, harmonised MRV systems for ex-situ carbon accounting are still absent, restricting integration into carbon markets. Moreover, despite evidence of bamboo's livelihood importance, rigorous evaluations of interventions such as training, cooperatives, and common facility centres remain scarce, leaving questions about long-term socio-economic impacts unanswered. Finally, fragmented governance and underdeveloped industrial value chains constrain India's ability to scale bamboo for global competitiveness, underscoring the need for integrated research that links ecological monitoring, socio-economic outcomes, and policy innovation.

Despite extensive literature on bamboo, several knowledge gaps persist:

1. **Productivity Metrics**: While area and biomass data are increasingly available, India lacks standardised, species-specific yield tables calibrated by age classes and ecological zones.
2. **Spatial-Temporal Monitoring**: Remote sensing applications remain limited to case studies; scalable frameworks for disturbance, mortality, and sustainable harvest planning are underdeveloped.
3. **Ex-situ Carbon Accounting**: Although LCAs demonstrate climate benefits of bamboo products, harmonized MRV systems for product carbon storage and substitution remain absent.
4. **Livelihood Impact Evaluations**: While bamboo's role in household incomes is recognized, rigorous empirical evaluations of interventions such as common facility centres, training, and cooperatives are scarce.
5. **Policy and Governance**: Fragmented policies, limited financing access, and weak institutional frameworks hinder sectoral growth. Comparative lessons from China and Southeast Asia are yet to be systematically adapted to India.
6. **Industrial Scaling**: Product diversification into textiles, composites, and biodegradable goods is well-documented, but India lacks integrated value chains and quality standards necessary for global competitiveness.

4. Objectives

The study aims to analyse trends, patterns and regional distribution of bamboo production in India using secondary data. Key objectives of the study are:

1. To examine trends in bamboo resources from 2021 to 2023, focusing on area and regional distribution.
2. To analyse regional disparities in bamboo availability and growth across states and ecological zones.
3. To propose actionable policy suggestions to boost bamboo production in India.

5. Methodology

This study is based on secondary data analysis, drawing mainly from the *India State of Forest Reports* (ISFR 2021 and 2023) and government records related to the National Bamboo Mission (NBM) and allied initiatives. The ISFR provides data on bamboo-bearing area, culm stock, and carbon estimates, which are analysed to identify temporal trends and regional variations in bamboo resources. These ecological indicators are complemented by policy and program documents from the NBM, which offer information on funding allocations, cultivation projects, value addition, and market development efforts aimed at strengthening the bamboo sector. The analysis combines trend assessment and regional comparison of ISFR statistics with content analysis of NBM documents to evaluate program design, implementation, and achievements. Findings from these sources are further interpreted with the support of existing scholarly literature to explore linkages between ecological outcomes, livelihood opportunities, and policy frameworks. While the study does not incorporate primary household-level data, its reliance on national reports and government

records allows for a comprehensive macro-level perspective on bamboo production, distribution, and its role in sustainable development.

6. Findings

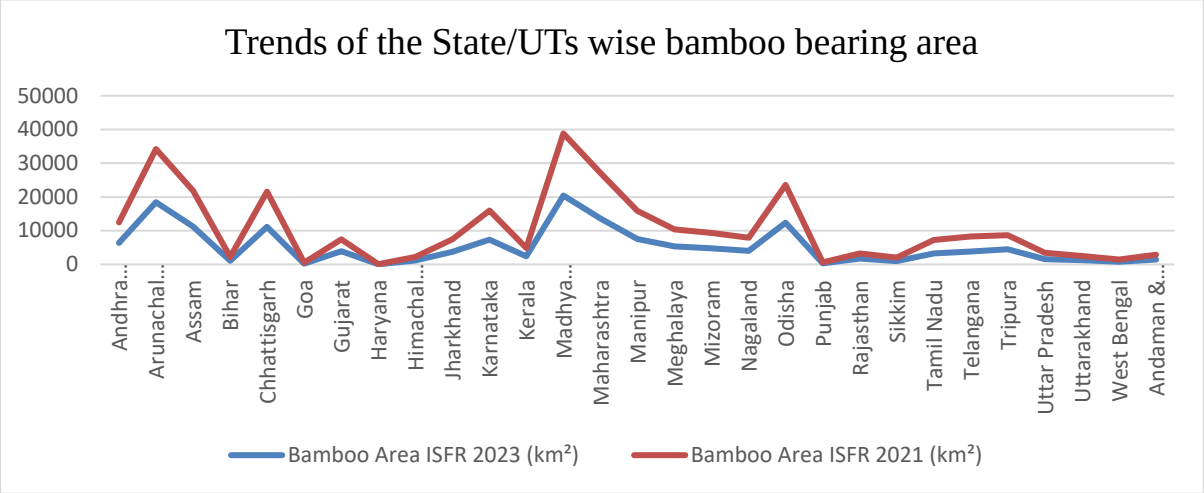
Table 1: State/UT-wise Bamboo area statistics

Sl. No.	State/UT	Bamboo Area ISFR 2023 (km²)	Bamboo Area ISFR 2021 (km²)	Change in Area (km²)	% Change
1	Andhra Pradesh	6370	6104	266	4.36
2	Arunachal Pradesh	18424	15739	2685	17.06
3	Assam	11246	10659	587	5.51
4	Bihar	1109	1103	6	0.54
5	Chhattisgarh	11139	10467	672	6.42
6	Goa	235	288	-53	-18.4
7	Gujarat	3895	3547	348	9.81
8	Haryana	42	39	3	7.69
9	Himachal Pradesh	1154	1027	127	12.37
10	Jharkhand	3746	3717	29	0.78
11	Karnataka	7334	8624	-1290	-14.96
12	Kerala	2443	2404	39	1.62
13	Madhya Pradesh	20421	18394	2027	11.02
14	Maharashtra	13572	13526	46	0.34
15	Manipur	7517	8377	-860	-10.27
16	Meghalaya	5347	5007	340	6.79
17	Mizoram	4772	4561	211	4.63
18	Nagaland	3980	3947	33	0.84
19	Odisha	12328	11199	1129	10.08
20	Punjab	311	280	31	11.07
21	Rajasthan	1706	1555	151	9.71
22	Sikkim	1010	994	16	1.61
23	Tamil Nadu	3217	4001	-784	-19.6
24	Telangana	3801	4535	-734	-16.19
25	Tripura	4466	4201	265	6.31
26	Uttar Pradesh	1598	1832	-234	-12.77
27	Uttarakhand	1307	1201	106	8.83
28	West Bengal	754	702	52	7.41
29	Andaman & Nicobar Islands	1426	1413	13	0.92
Total		154670	149443	5227	3.5

Source: ISFR 2021, 2023

This table lists the bamboo-bearing area for each Indian State and Union Territory as reported in ISFR 2023 and ISFR 2021. It includes the absolute bamboo area figures (in km²) for both reporting years, along with the calculated change in area and the corresponding percentage change over the two years. Each State/UT is assigned a serial number, and a total row is provided to summarise the national-level bamboo-bearing area and overall change.

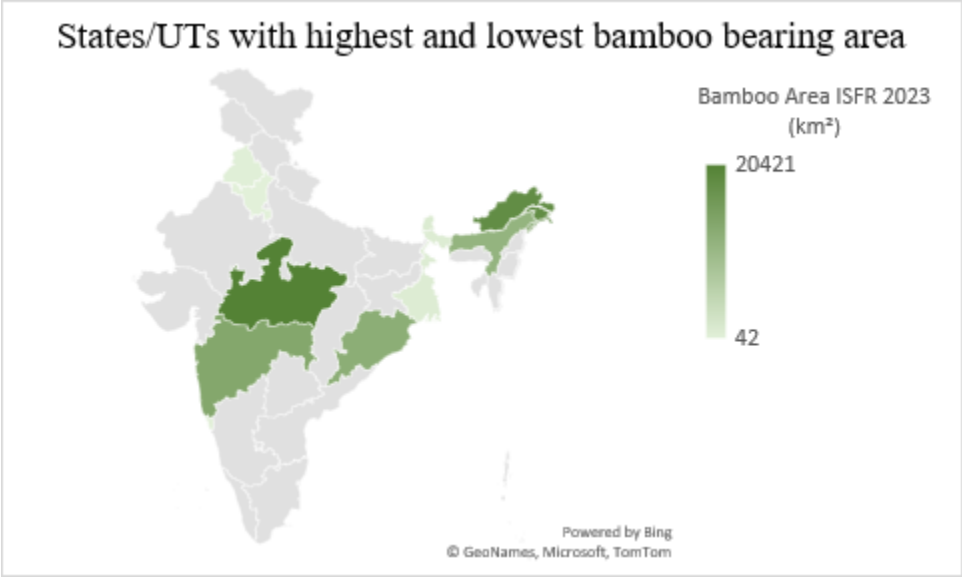
Figure 1: Trends of Bamboo bearing areas in States/UTs



Source: ISFR 2021, 2023

The graph comparing bamboo-bearing areas across Indian States and UTs for ISFR 2021 and ISFR 2023 shows a clear nationwide decline, with the 2023 values consistently lower than those of 2021. Major bamboo-rich states such as Arunachal Pradesh, Madhya Pradesh, Assam, Maharashtra, and Odisha exhibit the steepest reductions, though they continue to dominate national bamboo resources. The North-Eastern region, including Mizoram, Manipur, Meghalaya, Nagaland, and Tripura, remains a strong bamboo belt despite moderate declines. Mid-range states like Chhattisgarh, Karnataka, Jharkhand, Kerala, and Uttarakhand show smaller reductions, while states such as Punjab, Haryana, Goa, Delhi, Sikkim, and Rajasthan maintain very low bamboo coverage in both years. Overall, the graph highlights striking geographical contrasts, with some states exceeding 30,000 km² of bamboo area while others remain below 1,000 km².

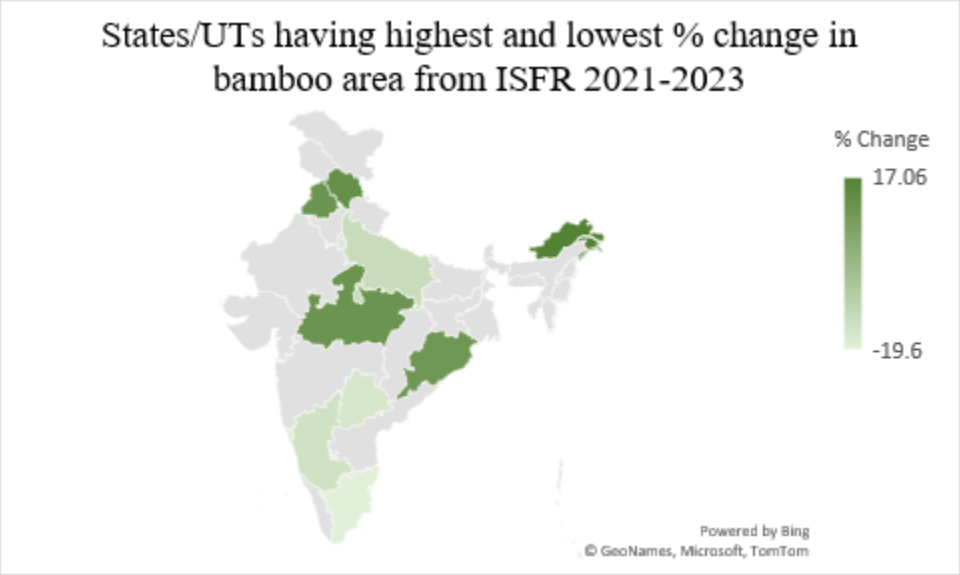
Figure 2: Highest and lowest Bamboo bearing area among States/UTs



Source: ISFR 2021, 2023

The map illustrates the states and UTs with the highest and lowest bamboo-bearing areas in India according to ISFR 2023. Darker green shades represent states with larger bamboo-bearing areas, while lighter shades indicate states with very low bamboo presence. The highest values reach around 20,421 km², while the lowest are close to 42 km².From the map, it is clear that **North-Eastern states** (such as Arunachal Pradesh, Mizoram, and Manipur) and **central Indian states** (notably Madhya Pradesh, Maharashtra, and Chhattisgarh) hold the **largest bamboo resources**. In contrast, many **northern, western, and southern states** show very minimal bamboo coverage, reflected by the lightest shades. Overall, the map highlights the strong geographical concentration of bamboo in the North-East and central India, while large parts of the country have very limited bamboo-bearing areas.

Figure 3: Highest and lowest % change in Bamboo area among States/UTs

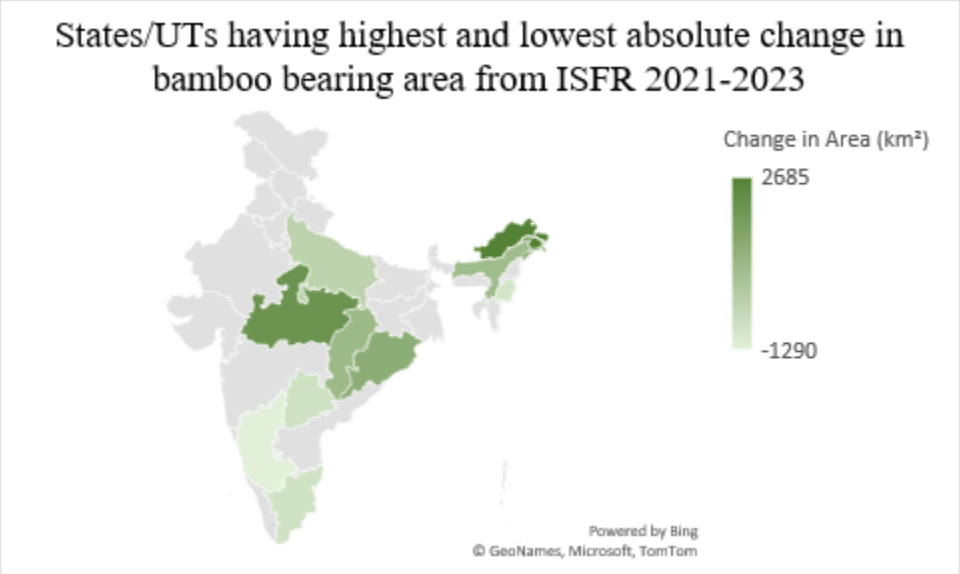


Source: ISFR 2021, 2023

This map shows the percentage change in bamboo-bearing area across Indian States and UTs between ISFR 2021 and ISFR 2023. States shaded in darker green experienced the highest positive growth, with increases up to around 17%, while states shaded in lighter or very pale green saw either small increases, negligible change, or even declines, going as low as 19.6%.

From the visual distribution, a few states in the North-East and parts of central India show positive growth in bamboo area, indicating successful regeneration or improved reporting. In contrast, several states across north, west, and southern India reflect declines, aligning with broader national patterns of bamboo reduction noted in recent forest assessments. Overall, the map highlights that while bamboo resources have grown in select regions, many states have experienced substantial reductions over the two-year period.

Figure 4: Highest and lowest absolute change in Bamboo bearing areas among States/UTs



Source: ISFR 2021, 2023

This map shows the percentage change in bamboo-bearing area across Indian States and UTs between ISFR 2021 and ISFR 2023. States shaded in darker green experienced the highest positive growth reaching increases of up to about 17% while states shown in lighter or very pale green recorded only marginal increases, negligible change, or even significant declines, with reductions going down to nearly 19.6%. From the overall spatial pattern, several states in the North-East and parts of central India display noticeable positive growth in bamboo-bearing area, suggesting effective regeneration, improved management, or enhanced reporting mechanisms. In contrast, many states across northern, western, and southern India show declines, reflecting the broader national trend of decreasing bamboo resources highlighted in recent forest assessments. Collectively, the map underscores that while some regions have made gains, a substantial number of states have seen marked reductions in bamboo-bearing area over the two years.

7. Conclusion

The comparison of bamboo-bearing areas between ISFR 2021 and ISFR 2023 shows considerable variation across Indian States and Union Territories. While several states, particularly in the North-East, central India, and parts of the east, recorded notable increases in bamboo area, others experienced substantial declines, most prominently in southern and some western states. The overall national gain of 5,227 km² (3.5%) indicates modest progress but also highlights uneven regional performance. These differences suggest that bamboo resource dynamics are strongly influenced by local ecological conditions, management practices, and land-use pressures.

8. Policy Suggestions

1. **Strengthen State-Specific Bamboo Management Plans**- Develop tailored strategies for states with declining bamboo cover, such as Tamil Nadu, Telangana, Karnataka, and Manipur, to address drivers like land conversion, overharvesting, or inadequate regeneration.
2. **Promote Large-Scale Bamboo Restoration in Depleted Regions**- Launch targeted restoration programs, including assisted natural regeneration and plantation efforts, especially in states showing double-digit declines.
3. **Enhance Monitoring, GIS Mapping, and Data Quality**- Improve ground-based surveys and remote sensing systems to reduce discrepancies across assessments, ensuring better tracking of bamboo resource changes.

4. **Support Community-Based Bamboo Resource Management**- Encourage Joint Forest Management Committees (JFMCs), tribal communities, and local cooperatives to participate in bamboo cultivation, harvesting, and sustainable use.
5. **Expand Incentives under the National Bamboo Mission (NBM)**- Provide financial support, seedlings, and technical guidance to farmers and forest-dependent communities, especially in states with low or stagnant bamboo cover.
6. **Strengthen Value Chain and Market Linkages**- Develop processing units, storage, transportation networks, and market infrastructure so that bamboo cultivation becomes economically attractive and reduces pressure on natural bamboo stands.
7. **Promote Climate Resilient Bamboo Species and Adaptive Practices**- Encourage research and adoption of species suited to local climatic conditions, particularly in regions experiencing degradation due to drought or changing rainfall patterns.
8. **Integrate Bamboo into Agroforestry and Land Restoration Initiatives**- Position bamboo as a key species in degraded land rehabilitation, watershed projects, and climate mitigation efforts due to its rapid growth and carbon sequestration potential.

References

Bal, L. S., Nath, A. J., & Das, A. K. (2012). Bamboo-based agroforestry systems in Northeast India: Productivity and sustainability. *Journal of Bamboo and Rattan, 11*(1–2), 1–13.

Canavan, S., Richardson, D. M., Visser, V., Le Roux, J. J., Vorontsova, M. S., Wilson, J. R., & Bellingham, P. J. (2016). The global distribution of bamboos: Assessing conservation priorities. *Diversity and Distributions, 22*(6), 745–759.

Chaowana, P., & Barbu, M. C. (2019). Bamboo: A sustainable alternative for textile fibers. *Journal of Natural Fibers, 16*(6), 870–879.

Du, H., Wu, J., & Fang, H. (2018). Policy-driven bamboo forest expansion and its socio-economic implications in China. *Forest Policy and Economics, 92*, 10–17.

Dwivedi, A., Pandey, A., & Kumar, A. (2019). Bamboo and rural livelihoods: A case study of tribal India. *Economic and Political Weekly, 54*(3), 67–75.

Feng, L., Qi, J., & Li, X. (2023). Remote sensing-based monitoring of bamboo biomass for carbon accounting. *Remote Sensing, 15*(3), 421.

Farrelly, D. (1984). *The book of bamboo*. Sierra Club Books.

FAO. (2007). *World bamboo resources: A thematic study prepared in the framework of the global forest resources assessment 2005*. FAO Forestry Paper No. 121.

Ge, J., Xiao, F., & He, Y. (2018). Bamboo plantations and carbon mitigation: Evidence from subtropical Asia. *Forest Ecology and Management, 427*, 23–30.

Gu, H., Wang, J., Li, Z., Pan, H., & Luo, X. (2019). Life cycle assessment of bamboo scrimber flooring in China. *Forests, 10*(1), 51. https://doi.org/10.3390/f10010051

Gupta, S., Sharma, R., & Rao, R. (2018). Women, bamboo crafts and rural economies in India. *Gender, Technology and Development, 22*(2), 179–197.

Jiang, P. K., Xu, Q. F., & Zhu, Z. L. (2011). Carbon sequestration of bamboo stands compared with tree plantations in China. *Journal of Environmental Management, 92*(6), 1533–1540.

Kumar, A., Sharma, S., & Singh, R. (2020). Challenges and opportunities in India's bamboo sector. *Indian Journal of Forestry, 43*(4), 489–497.

Lee, A. W. C., Bai, X., & Peralta, P. N. (2020). Mechanical performance of engineered bamboo composites. *Construction and Building Materials, 259*, 119774.

Li, R., & Kobayashi, H. (2004). Plantation forests of bamboo in Asia: Distribution and carbon sequestration potential. *Journal of Forestry Research, 15*(4), 255–260.

Li, X., Zhang, J., & Fu, G. (2019). Aboveground carbon dynamics of bamboo forests. *Forest Ecology and Management, 451*, 117576.

Liese, W., & Köhl, M. (2015). *Bamboo: The plant and its uses*. Springer.

Liu, J., Chen, Y., & Huang, L. (2019). Carbon sequestration of bamboo and implications for climate policy. *Journal of Cleaner Production, 231*, 1120–1130.

Manandhar, U., Singh, A., & Thapa, R. (2019). Bamboo and rattan value chains: Lessons from South Asia. *International Forestry Review, 21*(3), 326–340.

Nath, A. J., Das, A. K., & Das, G. (2020). Bamboo resources and their utilization in Northeast India. *Asian Journal of Forestry, 44*(2), 135–148.

Pan, Y., Yan, Y., Li, X., Fu, G., Qiu, J., Li, R., He, C., Lin, E., & Wu, J. (2023). Bamboo as a nature-based solution for climate change mitigation: Carbon sequestration and substitution potential. *Climate, 11*(11), 175. https://doi.org/10.3390/cli11110175

Patel, A. (2024). Bamboo as a sustainable alternative in textiles and rural livelihood development: A circular economy perspective (SSRN Scholarly Paper No. 5249285). Social Science Research Network. https://doi.org/10.2139/ssrn.5249285

Qi, J., Zhang, Y., & Feng, L. (2022). Policy interventions for sustainable bamboo management in Asia. *Forest Policy and Economics, 138*, 102725.

Rao, R., Patel, P., & Gupta, S. (2019). Economics of bamboo plantations: Evidence from Asia. *Agroforestry Systems, 93*(4), 1465–1477.

Sapovadia, V. K. (2023). Bamboo: The green gold of India – Potential for sustainable development, product diversification, and climate mitigation (SSRN Scholarly Paper No. 5285960). Social Science Research Network. https://doi.org/10.2139/ssrn.5285960

Singnar, P., Nath, A. J., & Das, A. K. (2021). Bamboo and livelihoods in North-East India. *Human Ecology, 49*(4), 509–519.

Song, X., Zhou, G., Jiang, H., Yu, S., Fu, J., Li, W., & Wang, W. (2017). Carbon sequestration by bamboo plantations and its role in climate mitigation. *Forest Ecology and Management, 394*, 117–125.

Tang, X., Liu, S., & Zhou, G. (2012). Carbon storage and management in bamboo plantations. *Journal of Environmental Sciences, 24*(3), 438–445.

Van der Lugt, P., & Vogtlander, J. G. (2015). The sustainability of bamboo products for building applications. *Resources, Conservation and Recycling, 101*, 1–11.

Wu, W., Liu, Q., Zhu, Z., & Shen, Y. (2015). Managing bamboo for carbon sequestration, bamboo stem and bamboo shoots. *Small-scale Forestry, 14*(2), 233–243. https://doi.org/10.1007/s11842-014-9284-4

Xu, L., Zhang, X., Li, H., Guo, L., Zhu, J., & Sun, G. (2024). Estimating aboveground biomass of bamboo forests using satellite data and field measurements: Implications for carbon sequestration and sustainable management. *Forests, 15*(9), 1907. https://doi.org/10.3390/f15091907

Xu, Q. F., Jiang, P. K., & Zhou, G. (2016). Carbon dynamics in bamboo ecosystems: A review. *Ecological Research, 31*(6), 853–866.

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FROM GRANARY TO GROWTH HUB: LIVELIHOOD DIVERSIFICATION AND STRUCTURAL TRANSFORMATION IN RURAL HARYANA

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Abstract

Haryana, long celebrated as the "Granary of India," has been a cornerstone of the Green Revolution, contributing significantly to national food security. However, ecological degradation, dwindling groundwater levels, climate variability, and declining agricultural profitability have put growing pressure on the sustainability of this agrarian achievement. This study looks at rural Haryana's continuous structural change, which is characterized by a slow transition from monocrop agriculture to diversified livelihood options that include on-farm diversification, related agricultural activities, and non-farm rural businesses. According to the report, ecological stress, proximity to the National Capital Region (NCR), supporting governmental policies, and infrastructure development are important drivers of diversification. It also assesses the socioeconomic effects of diversification on household resilience, job creation, nutritional diversity, and income stability. Although diversification has improved rural livelihoods, its potential is nevertheless limited by enduring issues like gender inequality, financial limitations, technology impediments, and infrastructure deficits. In order to guarantee sustainable rural development in Haryana, the paper's conclusion highlights the necessity of value-chain integration, institutional support, and equitable policy frameworks.

Keywords: Livelihood Diversification, Rural Transformation, Haryana, Green Revolution, Allied Activities, Non-Farm Employment.

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1. Introduction

In recent times, rural livelihood diversification has gained much attention from various researchers and policy makers in developing countries for its significant role in reducing vulnerability and poverty. In the course of changing economic development, the economic activities have expanded much beyond agricultural and its allied activities, particularly in rural areas (Bora & Mahanta, 2024). Diversification can be defined as activities undertaken by household members in order to improve their social status and standard of living. Diversification can also refer to the attempts undertaken by an individual or a household to find new ways of survival to raise income and endure shocks such as disasters and disease outbreaks (Mphande, 2016). Rural economy is defined by the predominance of agricultural activities. That is to say, agriculture and allied activities are the mainstay of the people living in rural areas. Apart from agriculture, in the rural economy manufacturing and services are also prevalent to some extent. For analytical convenience, manufacturing and services are clubbed together to form the non-farm economy. So, the rural economy comprises of two sub-sectors, farm sector and non-farm sector. Farm activities include agriculture (crop production), plantation, animal husbandry (milk, meat, egg etc), forestry & logging and fishing, whereas the non-farm sector includes all other activities like aggro-processing industries, wholesale and retail trading, storage and communication, transport and education, health industries and other service-related activities. Over the time

economy moves and tends to be transformed. Transformation means movement / transition of the economy from one stage to another stage of development. The well-known pattern of transformation that has been experienced by the countries at different stages of development is the movement from agriculture (farm) to manufacturing and then to service (Pal & Biswas, 2011).

Now, rural Haryana is faced with a dilemma. Agricultural output is still high, but farm earnings are becoming more erratic. Groundwater depletion, an imbalance in soil nutrients, and increased input costs are the results of continuous wheat-paddy production. Temperature extremes and unpredictable rainfall are two other ways that climate change has increased production hazards. In these conditions, rural livelihoods can no longer be sustained by agriculture alone. As a result, livelihood diversification has become an essential survival and expansion tactic. It entails diversifying revenue streams beyond conventional crop farming to include horticulture, dairy, fisheries, agro-processing, and non-farm jobs. In order to evaluate livelihood diversification's contribution to resilient and sustainable rural development, this research will examine its nature, causes, and consequences in rural Haryana.

2. Conceptual Framework: Livelihood Diversification

Livelihood diversification refers to the process by which rural households construct a diverse portfolio of activities and assets to improve living standards and manage risks. According to Ellis (2000), diversification can be driven by both push factors—such as poverty, land scarcity, and ecological stress—and pull factors—such as market opportunities, infrastructure, and higher returns from non-farm activities. Diversification in Haryana is a result of both factors working together. Farmers are drawn to high-value agriculture and non-farm jobs by being close to metropolitan markets and industrial corridors, while ecological deterioration drives them away from water-intensive crops. In this regard, diversification refers to a more comprehensive structural change of the rural economy rather than just an economic adjustment. Livelihood diversification has a positive and significant impact on household poverty and economic resilience (Abebe et al. 2021). The study concludes to ensure the capacity of rural households to practice farming along with a wide range of income-generating activities, participating in livelihood diversification should be given emphasis in development planning to improve the well-being of the rural poor and have a significant impact on poverty reduction. The study of (Loison, 2015) also indicates evolution and nature of rural livelihood diversification in Sub-Saharan Africa, highlighting its implications for smallholders. It synthesizes various empirical studies, revealing that while livelihood diversification is often seen as a pathway to poverty reduction and economic growth, its benefits are not uniformly distributed. The study of (Danso-Abbeam et al. 2020) also focuses on income diversification among smallholder farmers in Ghana, discussing how diversification can help mitigate risks, combat poverty, and boost welfare. The study finds a significant positive impact of income diversification on household consumption expenditure, income, and the likelihood of adopting Zai technology. (Peng et al. 2022) focuses on the relationship between livelihood diversification and household well-being. It develops a theoretical framework to explain the potential limits of diversification as a household poverty reduction strategy. The findings are that diversification is associated with improvements in SHWB for households with low and medium levels of well-being, but at higher levels of SHWB, education and income have much greater influence.

2.1 Factors Effecting Farm and Non-Farm Activities

2.1.1 Economic factors

The study focuses on agricultural diversification and discusses how diversification is a shift of resources from monoculture to a larger mix of crops, livestock, and other non-farm activities. This process is driven by factors like changing consumption patterns, rising incomes, and urbanization, which are increasing the demand for high-value commodities like fruits, vegetables, dairy, and meat (Deogharia, 2018). The study of (Chmieliński et al. 2023) also focuses on the factors influencing the diversification of

income sources in family farms in Poland. It uses panel data on 3,754 individual farms from 2009-2016 to analyse the livelihood strategies of farming families, focusing on the relationship between the economic size of the farm and the importance of non-agricultural income sources. The study suggests the need for policy tools that can support the development of the agricultural sector while also encouraging income diversification, particularly for smaller farms. The study of (Jabbar et al. 2023) highlights that non-farm income diversification is a vital livelihood strategy that endorses sustainable agriculture and alleviates poverty. Multiple studies have reported the significant effect of income diversification on farm production, labor hiring, procurement of farm inputs, and households' food security. However, there are also conflicting findings on the relationship between non-farm participation and farm-level investment, suggesting the need to further investigate this in the local context. The findings indicate that only limited literature discusses the role of non-farm income in adopting soil and water conservation (SWC) practices and household poverty in Pakistan. The study of (Qi et al. 2024) focused on measuring poverty vulnerability and its influencing factors, noting that most previous research used outdated data and narrow poverty thresholds, while overlooking the role of digital skills as a new form of human capital. The gap identified was the lack of exploration into how digital skills, as a form of new human capital in the digital economy, affect household poverty vulnerability. The implications of this research include the need for targeted policies to enhance digital skills among low-income farmers and the importance of digital infrastructure investment in rural areas. Key findings revealed that enhancing digital skills significantly reduced households' vulnerability to poverty, with a more pronounced impact among low-income households. Additionally, social digital skills were found to have the strongest effect in reducing poverty vulnerability, and the study demonstrated that improved digital skills strengthened social capital, which in turn reduced the risk of poverty reversion.

2.2.2 Socio- Economic Factors

The significance of livelihood diversification in rural economies, where households are heavily reliant on rain-fed agriculture. It discusses various factors influencing diversification, such as socioeconomic characteristics, access to resources, and institutional support (Sherifa, 2021). The findings reveal that male-headed households, landholding size, cooperative membership, and participation in rural safety net programs positively influence agricultural livelihood strategies, while distance to market negatively impacts these choices, underscoring the complex interplay of socioeconomic factors in livelihood diversification decisions. The study of (Salvioni et al. 2020) also focuses on non-agricultural diversification by farms. Findings indicates that a significant body of research has explored the factors that drive the adoption and intensity of diversification activities, such as sociolect-demographic, economic, and geographical characteristics of farms and farm households. However, the study states that little attention has been given to the impact of diversification on the technical efficiency, economic viability, and financial performance of farms. The findings indicate that there is a need for more research on the economic and financial impacts of non-agricultural diversification at the farm level, which is the focus of the current study. (Neglo et al. 2021) study also focuses importance of non-farm activities for reducing poverty and food insecurity in rural Ethiopia, as well as the key constraints faced by households in engaging in such activities. The findings indicate that factors such as gender, age, family size, literacy, health status, livestock ownership, crop production, access to credit, and participation in cooperatives and extension services influence household engagement in non-farm activities. Additionally, the results show that participation in non-farm activities has a positive effect on household income.

2.2.3 Demographic Factors

The study emphasizes the significance of understanding the determinants of rural households' livelihood diversification strategies, particularly in the context of developing countries (Kassegn & Abdinasir, 2023). Highlights of this study is various socioeconomic, demographic, and institutional factors that influence households' decisions to engage in different livelihood activities, including agricultural, non-farm, and off-farm pursuits. Previous studies have shown that

factors such as total income, cooperative membership, access to credit, and remittances play crucial roles in shaping these decisions. The findings also discuss the importance of community programs, such as rural productive safety net programs, in enhancing agricultural participation while noting their negative impact on non-farm activities. Overall, the study underscores the complexity of livelihood diversification and the need for targeted interventions to support rural households in building sustainable and profitable strategies. (Bora & Mahanta, 2024) aims to systematically review the nature and extent of rural livelihood diversification among tribal communities in the North-Eastern Region (NER) of India, focusing on the transition from traditional agricultural practices to diversified income sources due to low agricultural productivity and population pressure. The gap identified is the limited understanding of the specific factors influencing livelihood diversification among these communities compared to other regions in India. Practical implications include the need for targeted government interventions and private investments to enhance infrastructure and industrial development, which could facilitate better income sources for these communities. The findings reveal that while there is a shift towards multiple occupations, agriculture remains a primary livelihood source, and the potential for industrialization exists, albeit hindered by geographical isolation and underdeveloped infrastructure.

3. Drivers of Livelihood Diversification in Rural Haryana

3.1 Ecological and Environmental Stress

Ecological necessity is one of the major forces behind diversification in Haryana. Alarming groundwater depletion has resulted from an over reliance on the wheat-paddy cycle, especially in central and eastern regions like Karnal, Kurukshetra, and Kaithal. Long-term productivity has decreased as a result of the misuse of chemical pesticides and fertilizers, which has damaged soil health. Farmers have been forced by these environmental limitations to look into less resource-intensive alternative crops and livelihood activities.

3.2 Proximity to the National Capital Region (NCR)

Haryana's geographical proximity to Delhi and the NCR has created strong market linkages for agricultural and non-agricultural products. Urban demand for fresh vegetables, fruits, flowers, milk, and processed food has encouraged farmers to shift toward horticulture, floriculture, and dairy farming. Additionally, NCR-driven urbanization has expanded employment opportunities in construction, transport, services, and small manufacturing for rural households.

3.3 Policy Interventions and Government Support

The government of Haryana has implemented a number of initiatives to encourage diversification. By providing financial incentives for alternate crops, programs like Mera Pani Meri Virasat seek to decrease the production of paddy. Support for MSMEs, dairy development, and horticultural missions has made diversification even easier. These policy changes are a reflection of the rising understanding that structural change is necessary for agricultural sustainability.

3.4 Infrastructure and Industrial Development

Infrastructure development has reduced transaction costs and increased market participation. Examples of this include better road connectivity, rural electricity, and digital access. Particularly for young people living in rural areas, the Delhi–Mumbai Industrial Corridor (DMIC), which passes through Haryana, has stimulated industrial growth and non-farm jobs. Thus, improved infrastructure has reinforced routes for both farm and non-farm diversification.

4. Dimensions of Livelihood Diversification

Livelihood diversification in Haryana can be divided into three interconnected categories: non-farm employment, allied agricultural activities, and on-farm diversification.

4.1 On-Farm Diversification

On-farm diversification entails switching from conventional cereal crops to high-value, resource-efficient substitutes. Growing numbers of farmers are embracing organic farming, floriculture, mushroom cultivation, and horticulture (fruits and vegetables).

Compared to paddy, crops including kinnow, guava, tomato, and capsicum provide higher returns per acre and use less water. Farm profitability is greatly increased by these operations, even if they call for more technical expertise and market connections.

4.2 Allied Agricultural Activities

Allied activities play a crucial role in stabilizing rural incomes. Dairy farming, particularly with high-yielding Murrah buffaloes, has become a major source of regular cash income. Goat rearing, fishing, poultry, and beekeeping all help to diversify sources of income and lessen the risk of crop failure. These activities are particularly crucial for households without land and small and marginal farmers.

4.3 Non-Farm Employment and Enterprises

Agro-processing facilities, rural tourism, transportation services, retail commerce, and small manufacturing businesses are examples of non-farm diversification. In addition to creating year-round jobs and absorbing excess labour, these activities lessen reliance on agriculture. Higher income potential and social mobility are provided by non-farm jobs for young people in rural areas, which helps to gradually change rural society.

5. Socio-Economic Impacts of Diversification

5.1 Income Stability and Risk Reduction

Diversification reduces income volatility by spreading risk across multiple activities. Dairy, horticultural, and non-farm business households are more resilient to crop failures and price swings. Research shows that Haryana's diverse households had higher average earnings and more stable spending.

5.2 Employment Generation

Livelihood diversification has contributed to employment generation, particularly for women and youth. Women are essential to the dairy industry and related fields, yet men are more likely to work in non-farm occupations. Thus, diversification lowers seasonal unemployment and improves labour absorption.

5.3 Nutritional and Dietary Improvements

Diversified livelihoods are associated with improved dietary diversity. Food security and household nutrition are improved by increased production and consumption of fruits, vegetables, milk, and animal products. Higher Dietary Diversity Scores (DDS) among diverse rural households are indicative of this.

6. Constraints and Challenges

Livelihood diversification in Haryana has a number of drawbacks despite its advantages: Deficits in Infrastructure: The profitability of perishable items is restricted by inadequate cold storage, processing facilities, and well-organized marketing channels. Technological and Knowledge Gaps: Training in high-tech agriculture, such hydroponics and polyhouses, is sometimes unavailable to small and marginal farmers.

Financial Barriers: Adoption is discouraged by high initial investment needs and complicated credit and subsidy application processes. Gender Inequality: Women's access to resources, credit, and training is still a barrier to their involvement in non-farm entrepreneurship.

7. Discussion

Rural Haryana's transition is an example of the dynamic interplay between opportunity-led expansion and necessity-driven adaptation. In response to ecological stress, diversification has become a sensible strategy that simultaneously takes advantage of market integration and urbanization. However, enhancing institutional backing, market connections, and value-chain integration are just as important to the success of diversification as activity expansion. Without them, diversity runs the risk of becoming uneven and fragmented.

8. Conclusion

A diversified livelihood system is replacing the agriculture-dominated economy in rural Haryana, which is going through a major structural transition. While lessening the ecological strain on natural resources, livelihood diversification has improved household resilience, employment prospects, and income stability. However, policy initiatives must concentrate on financial inclusion, skill development, infrastructural

development, and gender-sensitive interventions in order to maintain this shift. In order to achieve inclusive and sustainable rural development in Haryana, farmers must be integrated into value chains as producers, processors, and marketers.

References

- Abebe, T., Chalchisa, T., & Eneyew, A. (2021). The impact of rural livelihood diversification on household poverty: evidence from Jimma Zone, Oromia National Regional State, Southwest Ethiopia. *The Scientific World Journal*, 21(1), 1-11.
- Alobo Loison, S. (2015). Rural livelihood diversification in sub-Saharan Africa: a literature review. *The Journal of Development Studies*, *51*(9); 1125-1138.
- Bora, D., & Mahanta, A. (2024). Rural Livelihood Diversification Among Tribal Communities of North-Eastern Region of India: A Systematic Review. *Journal of Asian and African Studies*, *59*(3); 842-857.
- Chmieliński, P., Pawłowska, A., & Bocian, M. (2023). On-farm or off-farm? Diversification processes in the livelihood strategies of farming families in Poland. *Social Sciences & Humanities Open*, *8*(1); 21-30.
- Danso-Abbeam, G., Dagunga, G., & Ehiakpor, D. S. (2020). Rural non-farm income diversification: implications on smallholder farmers' welfare and agricultural technology adoption in Ghana. *Heliyon*, *6*(11); 1-15.
- Deogharia, P. C. (2018). Diversification of agriculture: a review. *Journal of Economic & Social Development*, *15*(1); 46-59.
- Ellis, F. (2000). Rural Livelihoods and Diversity in Developing Countries. Oxford University Press. Government of Haryana (2022). Economic Survey of Haryana. Chandigarh.
- Government of India (2021). State of Indian Agriculture. Ministry of Agriculture & Farmers' Welfare, New Delhi.
- Kassegn, A., & Abdinasir, U. (2023). Determinants of rural households' livelihood diversification strategies: In the case of north Wollo zone, Amhara National Regional State. Ethiopia. *Cogent Economics & Finance*, *11(1); 1-23.*
- Mphande, F.A. (2016). Rural Livelihood. In: Infectious Diseases and Rural Livelihood in Developing Countries. Springer, Singapore, 12(1); 55-73.
- Neglo, K. A. W., Gebrekidan, T., & Lyu, K. (2021). Determinants of participation in non-farm activities and its effect on household income: An empirical study in Ethiopia. *Journal of Development and Agricultural Economics*, *13*(1), 72-92.
- Peng, W., Robinson, B. E., Zheng, H., Li, C., Wang, F., & Li, R. (2022). The limits of livelihood diversification and sustainable household well-being, evidence from China. *Environmental Development,43(2); 1-14.*
- Planning Commission (2013). Twelfth Five Year Plan: Faster, More Inclusive and Sustainable Growth. Government of India.
- Qi, J., Li, H., Li, W., Jin, J., & Ye, F. (2024). The Influence of Digital Skills on Farm Households' Vulnerability to Relative Poverty: Implications for the Sustainability of Farmers' Livelihoods. *Sustainability*, *16* (19); 1-18.
- Salvioni, C., Henke, R., & Vanni, F. (2020). The impact of non-agricultural diversification on financial performance: Evidence from family farms in Italy. *Sustainability*, *12* (2); 1-14.
- Singh, R. & Kaur, G. (2019). "Agricultural Diversification and Rural Livelihoods in Haryana." Indian Journal of Agricultural Economics, 74(3).
- World Bank (2018). Transforming Agriculture for Sustainability in India. Washington, DC.

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CLIMATE CHANGE IMPACT ON AGRICULTURE: THE ROLE OF EDUCATION IN PROMOTING SUSTAINABLE ADAPTATIONS IN BANKURA: SYSTEMATIC REVIEW

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Abstract

Climate change (CC) has emerged as a major issue affecting agriculture, posing an important menace to both subsistence and the economy of any community. This study focuses on the impact of CC on the agricultural sector in Bankura district, West Bengal (WB), India, and identifies sustainable adaptation strategies to mitigate these effects. A systematic review approach has been employed to explore long-term adaptation strategies to climate-related challenges. The primary objectives of this research are to assess the impacts of CC on agriculture and to identify sustainable adaptation measures. The study evaluates the effects of spatial and temporal variations in climatic parameters such as temperature and rainfall on crop yield and agricultural productivity. The research adopts a secondary data analysis method. Findings indicate that rising temperatures and irregular rainfall patterns have led to reduced crop yields and decreased water availability. The study identifies several sustainable adaptation strategies that can assist farmers in coping with these challenges. Insights from the systematic review of existing literature reveal that farmer education, water management, systematic agricultural practices, sustainable farming techniques, agroforestry, mixed farming systems, land management practices, and crop diversification can play key roles in mitigating the impacts of climate change. This paper offers an extensive analysis of the impacts of climate change on agriculture and underscores successful adaptation measures to bolster the resilience and welfare of rural people.

Keywords: Agriculture, Bankura, Climate change, Sustainable adaptations

.Introduction

Climate change (CC) is a global challenge that has significant impacts on all sectors, including agriculture (Alley et al., 2007). CC is affecting conditions for crop production, livestock management, and agricultural systems in general, with rising temperatures, changing rainfall patterns, and increasing frequency of extreme weather events (Kamle et al., 2019). These changes pose substantial challenges to agricultural productivity, food security, and the livelihoods of millions of people, particularly in vulnerable regions. Bankura district, located in the state of WB, India, is one such region where agriculture plays a crucial role in the local economy and food security (Agricultural Statistics at a Glance, 2020). The district is predominantly rainfed, which means that the impacts of climate change on agriculture are particularly severe. Variations in temperature and rainfall patterns, along with the increasing frequency of droughts and floods, can have devastating effects on crop yields, farmers' incomes, and food availability (De & Pal, 2019). A systematic review allows for the spatial analysis of climate data, crop production, and other relevant variables, providing valuable insights into the complex interrelationship between climate, agriculture, and geography. The primary objective of this study is to examine the impact of climate change on agriculture in Bankura district and to

conduct a systematic review of sustainable adaptation strategies that can help mitigate these impacts through education and knowledge dissemination. The aim of this study is to provide a comprehensive understanding of the challenges that climate change presents to the agriculture in Bankura district and the adaptation measures that will help agricultural systems in the district to become more resilient and to identify effective adaptation measures that can enhance the flexibility and sustainability of agricultural process in the region.

Review of Related Literature

Abbass et al. (2022) the paper emphasizes that the world climate changes influences and sustainable mitigation options. The objective of the study was how climate variability is deteriorating the sustainability of diverse sectors worldwide. The researcher was used Systematic review methods in this study. The data was collected by Web of Science and Google Scholars referenced articles. The qualitative data was then refined and analysed by using Systematic review. Independent Accountability of the past resources and regulations would be essential for government in order to bring the country back on a sustainable track through state-of-the-art climate policy for long-term development.

Sinore and Wang (2024) The objective of the study was effects on different areas, adaptive strategies and problems associated with climate change in Ethiopia. The researcher was used meta-analysis methods in this study. The data was collected by Web of Science, ScienceDirect and Google Scholars referenced articles. The analysis considered various adaptation measures to climate change. Key lesson the above findings highlight the need for comprehensive, integrated approaches to addressing challenges in Ethiopian communities including adaptation strategies that will assist the resilience of Ethiopian communities.

Rahman et al. (2018) The purpose of the study was effect so that to crop up and sustainable management strategies were recommended in utilization of resources and environment. The researcher applied GIS-Based Analysis. The predictions for temperature and rainfall were based on historical data of 2011–2020. The research examined the decadal variation and agro- climatic patterns of temperature and precipitation in Bangladesh. The study found high climate vulnerability in Bangladesh and an urgent need for developing agriculture resilient to climate change.

Hembram and Mondal (2020) The article highlights that climatic environment of the Bankura district. The researcher was used secondary data for the period of 1901 to 2018 is collected from India Meteorological Department. The study analysed by using both mathematical and statistical techniques. The result of this study was decreasing trend of annual rainfall reduction of 12.03 mm/year.

De and Pal (2019) This paper examines the growth of agricultural productivity, crop diversity. The researcher was used panel data analysis method. The article also found that impact on the growth of productivity in the region. Quantitative data were analysed in this study. The researcher was used longitudinal data analysis. The finding of the study was significant weather dependence and lack of technological involvement in the agriculture.

Tadesse and Ahmed (2023) The objective of the study was to assess the climate smart agriculture practice. The article highlights that smart agriculture implemented in Ethiopia were agronomic practices. The researcher was used Systematic review methods in this study. The data was collected by Web of Science and Google Scholars referenced articles. This analysis was geographically confined to Ethiopia. The implication of the study should also encourage promotion of varied climate smart agriculture practice.

Research Objectives

1. To study the impact of CC on agriculture in Bankura district through a systematic review.
2. To conduct a comprehensive review of existing literature on sustainable adaptation strategies in agriculture and to identify effective measures for enhancing climate resilience in Bankura district.

Methodology

This study employs a systematic review of existing literature to assess the impact of climate change on the agricultural sector of Bankura district and to identify sustainable adaptation strategies. The information for this article was collected using a systematic literature review approach (Tranfeld et al., 2021). The search procedure adopted for the study is illustrated in Figure 1. First, the research topic was identified to guide the literature review process (Cooper et al., 2018). Second, relevant articles were selected and data were gathered from databases such as Google Scholar, Web of Science, Scopus Index, Sage, Springer, Elsevier ScienceDirect, and other peer-reviewed sources. Keywords including climate change, agriculture, sustainable adaptation, and Bankura were used to identify and collect relevant studies.

Through keyword-based searches, multiple studies were retrieved, with greater emphasis placed on recent publications over older ones to ensure updated and relevant findings. In addition, data were also sourced from seminar papers, workshops, conference proceedings, debates, and published articles. Specific selection criteria were applied to ensure the relevance and quality of the reviewed literature. A total of 80 research papers were initially identified from various databases. However, after reviewing abstracts, objectives, methodologies, and titles, 32 papers were excluded as irrelevant, and 48 were selected as suitable for detailed analysis.

The key criterion for inclusion in the same was that studies had to cite climate change effect on agriculture in Bankura district and proposed sustainable adaptation options. This study, in summary, reviews comprehensively the influence of climate change on agriculture at Bankura and also intends to develop suitable sustainable baseline(ref:1) adaptation strategies.Study Area

The study area selected for this research is Bankura district, located in the state of West Bengal, India. Bankura lies between latitudes 22°38′ and 23°38′ N and longitudes 86°36′ and 87°46′ E, covering an area of approximately 6,882 square kilometres (Census of India, 2011). It is a predominantly agricultural district, where a large number of people are involved in agriculture and allied sectors (Directorate of Economics and Statistics, 2020). The agricultural system of the district is predominantly rainfed, making it highly vulnerable to climate-related shocks and stresses. Bankura experiences a tropical savanna climate characterized by hot summers and mild winters (Yadav et al., 2020). The district receives an average annual rainfall of about 1,400 mm, most of which occurs during the monsoon season (June to September) (Kamle et al., 2019). Bankura district is considered climate-vulnerable due to its dependence on rainfed agriculture, limited irrigation facilities, and exposure to extreme weather events such as droughts and floods (De & pal, 2019). Understanding the impacts of climate change on agriculture in Bankura is therefore essential for developing effective adaptation strategies and promoting sustainable agricultural practices in the region.

Data Collection

To gather information on sustainable adaptation strategies in Bankura district, a literature review covering the past ten years was conducted to examine whether the degradation of the agricultural sector caused by CC can be mitigated through sustainable adaptation measures. Across India, education has been found to play an indirect yet crucial role in promoting various strategies for sustainable adaptation. In this study, the researcher identified ten key adaptation strategies that are indirectly supported or promoted through education. These include farmer education, water management, behavioural change, systematic farming practices, sustainable agricultural techniques, agroforestry, livelihood diversification, mixed farming systems, land management practices, and government policies and regulations. Each of these strategies is directly or indirectly related to climate-focused sustainable adaptation measures in the context of Bankura district.

Results and Discussion

a. Impact of CC on agriculture

CC has raised as a major challenge for the agricultural sector in Bankura district, WB, India. Rising temperatures and irregular rainfall

patterns are disrupting crop production, quality, and overall food security. A study published in the Journal of Agrometeorology reported that rice production in the district fluctuates significantly due to climatic factors such as temperature variability and inconsistent rainfall. The study further noted that these climatic changes are reducing crop productivity and adversely affecting farmers' livelihoods. Variations in weather patterns hinder crop growth and development, leading to lower yields and declining agricultural incomes—this poses a serious threat to food security and the local economy. Since agriculture in Bankura is predominantly rain-dependent, the district faces increasing risks from variable rainfall patterns and ultimate weather events such as droughts and floods. These factors can severely disrupt agricultural activities and worsen the economic conditions of farming communities. To mitigate the adverse impacts of CC on agriculture in this region, it is essential to implement climate-resilient strategies such as crop diversification, conservation-based farming practices, and integrated pest management. Moreover, promoting climate-tolerant crop varieties, improving irrigation infrastructure, and providing farmers with timely climate information can significantly strengthen their capacity to adapt to and sustain agricultural productivity in a changing climate.

CC has triggered a range of environmental transformations, disproportionately affecting vulnerable groups such as women, children, and marginalized communities in rural areas. The challenges arising from CC include increasing poverty, limiting human decision-making capacity, and hindering the achievement of SDGs (Tofu et al., 2023). In Bankura district, the impacts of CC on agriculture are increasingly complex & interconnected. CC continues to influence agricultural production, water availability, ecosystems, and overall human well-being (Alemayehu & Bewket, 2017).

Education is important for addressing these challenges through enabling the implementation of sustainable adaptation measures such as: water management, farmer education, systematic agricultural practices, sustainable farming techniques, agroforestry, multi-farming systems and land management practices. The primary objective of these sustainable adaptation strategies is to reduce the adverse impacts of CC in Bankura district while fostering a supportive social and ecological environment conducive to a healthy ecosystem (Sinore et al., 2020).

The sustainable adaptation strategies are as follows –

b. Sustainable adaptations strategies

Table 1: Sustainable adaptation strategies

SL NO	Major adaptation strategies	Descriptions
1	Farmer education	Enhance their knowledge and skills
2	Water Management	Soil and water conservation
3	Change of habit	Improved sustainable agriculture systems
4	Systematic farming strategies	Agriculture and crop planning
5	Sustainable agriculture practices	Improved soil health & biodiversity
6	Agroforestry	Conserving forests
7	Livelihood diversification	Income-generating activities
8	Mixed farming systems	Application of improved crop varieties
9	Land management practice	Integrated soil fertility management practice
10	Government Policies and Regulations	Supportive government policies

Farmer Education

Farmers should be provided with adequate training to enhance their knowledge and skills. Through improved awareness and capacity building, they can adopt climate-resilient methods and new technologies to strengthen agricultural productive and sustainability.

Water Management

Water conservation plays an important role in protecting farmers from the risks of both droughts and floods. During periods of heavy rainfall, excess water can be effectively stored, and flood irrigation practices can be extended to ensure long-term water availability and management (Kamle et al., 2019).

Behavioural Change

Soil erosion can be prevented by improving conservation-based agricultural systems. This encourages sustainable farming and promotes the development of more advanced and resilient agricultural practices (Lal, 2004).

Systematic Agricultural Techniques

Modern systematic techniques are now being employed to enhance productivity in both agricultural planning and crop management (Altieri, 2002).

Sustainable Agricultural Practices

To maintain sustainability in agriculture, the use of organic and bio-based fertilizers should be encouraged. These practices help build fertile soil, improve soil health, and enhance biodiversity and ecosystem services (Gliessman, 2015).

Agroforestry

Agroforestry involves the integration of tree cultivation with farming practices to conserve forests, prevent soil erosion, and provide protection against extreme heat and drought. Forests act as a protective canopy for biodiversity, fostering ecological balance and resilience (Nair, 2011).

Livelihood Diversification

Farmers should diversify their livelihoods to reduce dependence on agriculture alone, enabling participation in non-farm activities. Developing multiple sources of income—such as livestock rearing, leaf plate making, or honey collection—can strengthen resilience and improve economic stability (Ellis, 2000).

Mixed Farming Systems

The introduction of mixed farming systems not only enhances agricultural productivity but also contributes to overall agricultural and rural development. For instance, integrating livestock with crop production can promote environmental harmony and resource efficiency (Ruthenberg, 1980).

Land Management Practices

To minimize land degradation and maintain healthy soil, conservation tillage and contouring are also key sustainable land management practices (Montgomery, 2007).

Government Policies and Regulations

Supportive government policies are crucial for implementing sustainable adaptation strategies. These include providing incentives, subsidies, and access to climate information services. Effective policy interventions can significantly mitigate the adverse impacts of CC on agriculture.

Conclusion

Significant impacts of CC have been observed on agricultural fields and related sectors in Bankura district. The study highlights the necessity of sustainable adaptation strategies to enhance resilience and implement sustainable development. Education in this research encompasses farmer training, water management, agroforestry, livelihoods, livelihood diversification, and multiple adaptation strategies, which were analysed through a systematic review of existing literature (Kumar et al., 2019). Emphasizing the promotion of sustainable agricultural practices, agricultural development policies and climate

change programs aim to increase resilience and reduce vulnerability (Gliessman, 2015). The study suggests that existing adaptiveness of various parts off Bankura can reduce the impacts of CC. However, these strategies face various social, cultural, psychological, economic, institutional, and policy-related barriers (Sinore & Wang, 2020). Currently, modern life is structured according to climatic patterns, and it is therefore essential to align practices accordingly. From the grassroots to the international level, sustained attention and research are required to maintain adaptive capacity and provide effective adaptation in the face of rapid CC (Howlett & Ramesh, 2003).

References

1. Alemayehu, A., Bewket, W. (2017). Determinants of smallholder farmers' choice of coping and adaptation strategies to climate change and variability in the central highlands of Ethiopia. Environmental Development, 24(5), 77–85.

2. Altieri, M. A. (2002). Agroecology: The science of natural resource management for poor farmers in marginal environments. Agriculture Ecosystems & Environment, 93(1-3), 1-24

3. Aggarwal, P. K. (2008). Global climate change and Indian agriculture: impacts, adaptation and mitigation. Indian Journal of Agricultural Sciences, 78(11), 9-11.

4. Abbass, K., Qasim, M. Z., Song, H., Murshed, M., Mahmood, H., & Younis, I. (2022). A review of the global climate change impacts, adaptation and sustainable mitigation measures. Environmental science and pollution research, 29(28), 42539-42559.

5. Benita, F. (2021). Human mobility behaviour in COVID-19: A systematic literature review and bibliometric analysis. Sustain Cities Soc, 70:102916

6. Cooper, C., Booth, A., Varley-Campbell, J., Britten, N., Garside, R. (2018). Defining the process to literature searching in systematic reviews: a literature review of guidance and supporting studies. BMC Med Res Methodology, 18(1),1-14.

7. Census of India. (2011). District Census Handbook, Bankura District, West Bengal.

8. Department of Economics and Statistics. (2020). Agricultural Statistics at a Glance.

9. De, U. K., & Pal, M. (2019). Impact of climate change on agricultural productivity in India's North-Eastern Region: A panel data analysis. International Journal of Statistical Sciences, 17, 1-38.

10. Directorate of Economics and Statistics. (2020). Agricultural statistics at a glance. Directorate of Economics and Statistics. Dept. of Agric. and Co-operation. Ministry of Agriculture, Government of India.

11. Ellis, F. (2000). Rural livelihoods and diversity in developing countries. Oxford University Press.

12. Ghosh, P., & Kumpatla, S. P. (2022). GIS applications in agriculture. In Geographic Information Systems and Applications in Coastal Studies. Intech Open.

13. Gliessman, S. R. (2015). Agroecology: The ecology of sustainable food systems. CRC Press.

14. Hembram, B., & Mondal, S. (2020). Assessing the Climate Change on Bankura District of West Bengal: 117 Years Rainfall Data Analysis. *CLIO:* An Annual Interdisciplinary Journal of History, 6(14).

15. Howlett, M., & Ramesh, M. (2003). Studying public policy: Policy cycles and policy subsystems. Oxford University Press.

16. IPCC. (2021). Climate Change 2021: The Physical Science Basis.

17. Kamle, M., Mahato, D. K., Devi, S., Lee, K. E., Kang, S. G., & Kumar, P. (2019). Fumonisins: Impact on agriculture, food,

and human health and their management strategies. Toxins, 11(6), 328.

18. Kumar, P., et al. (2019). Impact of climate change on agriculture: A review. Journal of Environmental Science and Health, Part B, 54, 147-157.

19. Lal, R. (2004). Soil carbon sequestration impacts on global climate change and food security. Science, 304(5677), 1623-1627.

20. Marie. M., Yirga, F., Haile, M., Tquabo, F. (2020). Farmers' choices and factors affecting adoption of climate change adaptation strategies: evidence from northwestern Ethiopia. Heliyon, 6(4).

21. Montgomery, D. R. (2007). Soil erosion and agricultural sustainability. Proceedings of the National Academy of Sciences, 104(33), 13268-13272.

22. Nair, P. R. (2011). Methodological challenges in estimating carbon sequestration potential of agroforestry systems. Carbon sequestration potential of agroforestry systems: opportunities and challenges, 3-16.

23. Rahman, M. R., Lateh, H., & Islam, M. N. (2019). Climate of Bangladesh: temperature and rainfall changes, and impact on agriculture and groundwater—a GIS-based analysis. In Bangladesh I: Climate change impacts, mitigation and adaptation in developing countries. Cham: Springer International Publishing, 27-65.

24. Ruthenberg, H. (1980). Farming systems in the tropics. Oxford University Press.

25. Sishodia, R. P., Ray, R. L., & Singh, S. K. (2020). Applications of remote sensing in precision agriculture: A review. Remote sensing, 12(19), 3136.

26. Sinore, T., & Wang, F. (2024). Impact of climate change on agriculture and adaptation strategies in Ethiopia: A meta-analysis. Heliyon, 10(4).

27. Tadesse, B., & Ahmed, M. (2023). Impact of adoption of climate smart agricultural practices to minimize production risk in Ethiopia: a systematic review. Journal of Agriculture and Food Research, 13, 100655.

28. Tesfahunegn, G.B., Mekonen, K., Tekle, A. (2016) Farmers' perception on causes, indicators and determinants of climate change in northern Ethiopia: implication for developing adaptation strategies. Applied Geography, 73, 1–12.

29. Tranfeld, D., Denyer, D., Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. Br J Manag, 14(3), 207-222.

30. Tofu, D. A., Mekuria, M. M., & Ogato, G. S. (2023). Climatic extremes' resilient livelihoods of rural households in the Eastern Ethiopia. Agriculture & Food Security, 12(1), 42.

31. Yadav, D. B. P., Giri, R. K., Puviarasan, N., & Bhan, S. C. (2020). India Meteorological Department.

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IMPACT OF BANKING INNOVATIVE SERVICE ON CUSTOMER SATISFACTION: A STUDY ON MANIPUR RURAL BANK

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Abstract

Purpose: The purpose of this study is to examine customer response towards the key service attributes like reliability, responsiveness, tangible infrastructure, and assurance and employee empathy of Manipur Rural Bank.

Methodology Approach: Twelve branches of Manipur Rural Bank were selected; seven branches were in Imphal West and five in Imphal East. The total number of customers sampled was 360, out of which 200 were customers of Imphal West and 160 customers from Imphal East. Data were collected by a self-administered questionnaire. The SERVQUAL model was the guiding force for the analysis which has also been used together with exploratory factor analysis, correlation and regression in the evaluation of customer satisfaction. **Findings** - The results found that reliability, tangible infrastructure and empathy have a significant and positive effect on customer satisfaction. In comparison, assurance and responsiveness played little role. The study also helps to highlight some customers are remote, illiterate and unaware. **Research limitations/implications** - The results obtained are specific to Manipur Rural Bank and may not generalise to other banks. **Originality/value -** The research made by considering demographic, topographic and infrastructural factors (roads, transportation and branch locations) of hill districts, bank management should take revised model to know the demand of the customers at the grassroots level and then make supply-specific service and strategy.

Keywords: Customer satisfaction, quality of service, Manipur Rural Bank

1.2. Introduction

Marketing and behavioural scientists have long realised that customer delight can result in customer loyalty and higher profits (Rust et al, 2002; cited by Oriol Iglesias et al, 2018). Understanding how satisfied your customers really are is therefore important in a competitive environment. Global competition and accelerated technology have transformed many industries including one of the financial sectors-banking. The sector is evolving as a result of products, information technology, market liberalisation, and financial deregulation- all of which have brought change in customer expectations. Financial innovation is nothing new, in fact, it serves to boost economies in the past. Adopting new and innovative solutions is helping banks remain competitive. The onslaught of private banks

like HDFC, ICICI and UTI in 1990s radically change the Indian banking horizon and the customer demands top class services. Banks retaliated with value-added services such as ATMs, internet banking, mobile banking, etc. Until recently, customers in the Northeast had difficulty getting services from banks. Leaf way openings were hard to find due to hilly terrain and low-population levels, with service being available mostly from sub-divisional centres. The introduction of Pradhan Mantri Jan Dhan Yojna (PMJDY) on the 15th of August, 2014 with private players and agencies supported under it, many rural branches aided in availing service alternatives and competitions. With increasing awareness and literacy, customers now have more knowledge on the risks, cost, and returns of financial products. Modern banking is more encompassing than just deposits, loans, and money transfer and includes insurance, brokerage, advisory services, merchant banking, factoring, and other services. For banks to thrive, they need to design marketing strategies that will attract and retain customers. Customer satisfaction and perception have become key performance indicators to banks. Increased Offerings Credit cards, mutual funds, merchant and lease financing are offered to create positive customer perceptions (Zeithaml et al., 2009). Continuous monitoring of customer impressions is necessary as impressions can change over time (Zeithaml & Bitner, 2003). Perceived service quality remains a very important, but occasionally controversial, construct in contemporary marketing literature. It has a direct impact on customer value and customer loyalty (Oliver, 1996). Innovation is a multi-stage process, which transforms ideas into new or improved goods, services or procedures. For the banks, the ability to provide such type of innovative services is very important for survival in today's environment. Academics continually comment on the significance of innovation in addressing the issue of financial exclusion and improved service delivery in the financial sector since the beginning of financial modernisation (Baregheh et al., 2009).

1.3. Profile of Manipur Rural Bank

Manipur Rural Bank (MRB) was established in 1981 as a joint venture of Central Government, Manipur State Government and Punjab National Bank with the capital ratio as 50:15:35 respectively. The bank caters to the facilities of credit and banking in rural development for the entire state. Its basic mission is to link rural areas to the urban centres and one rural community to another. MRB facilitates financial inclusion and literacy through the provision of IT-based financial products like NEFT, RTGS, ATM, POS transactions, and SMS alerts recently launched to facilitate the same.

Table 1.1: Network of Manipur Rural Bank as on March 2022

SL. No	Districts	No. of Branches
1	Imphal East	5
2	Imphal West	7
3	Thoubal	4
4	Kakching	1
5	Bishnupur	4
6	Tengnoupal	1
7	Kangpokpi	1
8	Ukhrul	1
9	Noney	2
10	Churachandpur	1
Total		**27**

Source: *Annual Report of Manipur Rural Bank, 2021-22*

1.4 Review of Literature

A review of related literature is aimed to introduce the importance of the study in a thematic way. The study is structured based on 2 major assertions according to the area of research: (a) Customers' Satisfaction and Perception, and (b) Service Quality and Innovative Services. The main dimensions to

consider in this regard are the infrastructures of tangible, the responsiveness, reliability, assurance and empathy.

1.4.1. Customers' Satisfaction and Perception

Studies on customer perception and customer satisfaction are becoming more popular and are well recognised in the knowledge about service marketing (Anderson et al., 1994). Recent research in the human service settings has further supported this relationship (Bigne et al., 2003). In regard to the relationship between perception and service quality, much literature has been devoted to how the quality and the quality perception should be measured (Cronin & Taylor, 1992). The Saraiya Committee

(1972) suggested seventy-seven improvements regarding customer services whereas the Talwar Committee (1975) focused on the fact that customer service is a dynamic concept and that it should be continuously evaluated to comprehend the perceptions of the customers. Kattara et al. (2008) found that customer satisfaction with the product offerings is one of the main determinants of overall customer satisfaction and the quality of services provided by the various channels (Information Technology enabled call centres and Traditional branches) is essential. This has major implications for how one manages satisfaction in the financial services industry. Suh and Han (2003) showed that the sense of security enhances customer satisfactions When trust and security are regarded as an important factor in e-commerce's acceptance. Bolton (1998) demonstrated that by modelling the length of time spent by the supplier and customer in the relationship, it is possible to calculate the effect of service improvements on revenue, pointing out the importance of changes in levels of satisfaction. Andreaasen and Lindestad (1998) found that corporate image has an effect on customer loyalty, while customer satisfaction does not have the same effect. Bihkongnyuy (2018) contended that it is imperative to maintain high quality, customer satisfaction and customer loyalty to win tough competition. Ahmed (2002) and Jham & Khan (2008) established the relationship between customer's satisfaction of Indian bank and the bank's performance. Quyet, Vinh, & Chang (2015), Kumar & Singh (2006), Pont & McQuilken (2005), Mistry (2013), no significant difference found in terms of satisfaction between loyalty and changes but stated significant impacts across all dimensions of behavioural intentions. Bloemer et al. (1998) identified reliability and market position as being important drivers of loyalty in retail banking. Kaura et al. (2015) and Jamal & Naser (2002) demonstrated that the factors such as service quality, perceived price and fairness, and service convenience influence satisfaction and loyalty positively which act as mediators between antecedents and loyalty. Culiberg and Rojsek (2010) highlight the significance of customer satisfaction in various industries, and that low responses from bank employees may affect customer dissatisfaction, which could be overcome with specialised training.

1.4.2. Quality of Service and Innovative Services

This section involves review of the services of the bank with a focus on quality provided to the customers. SERQUAL conceptualises the quality of services using five variables: tangible infrastructure, reliability, responsiveness, assurance and empathy (Parasuraman et al., 1988; Ahmad et al., 2020; Mohammad et al., 2016; Roberts & Amit, 2008). The research community in turn largely takes for granted that the quality-of-service results in customer satisfactions, although the causality of the direction of the relationship is still debated (Anderson & Fornell, 1994; Reidenbach & Sandifer-Smallwood, 1990). Ushantha et al. (2014) found consumers perceive SERVPERF dimensions in a positive manner; namely, reliability, assurance, empathy, tangibles, and responsiveness are positively perceived. Sowmya & Kumar (2017) stated that customer base prefers online banking for its convenience, accuracy, tangibility, reliability, loyalty, and availability. The performance, success, and survival of banks are much dependent on the quality of service. Aktar (2011) and Ananth et al. (2010) believe the same while Hoffman & Batesan (2010) defined the service quality as a long term and global evaluation of a company's performance. Lovelock et al. (2011) believed that perceived service quality in customers is a result of customers making comparisons between their expectations and the outcomes.

McDougall & Levesque (2000) and Felix (2017) suggested the most important factors in terms of satisfaction to be perceived value and basic quality of service. The extension of perceived value and service quality into models of satisfaction helps give a complete picture of the drivers of satisfaction. The Goiporia Committee (1991) focused on the creation of an amicable banker - client relationship and therefore took some initiatives such as attractive term deposit schemes and customer service indices. Aldlaigan & Buttle (2002) highlighted that customer measures quality of service at organisational and transactional levels which is beneficial in banking. Dutta and Dutta (2009) described that foreign banks are considered to have better quality services compared to private and public banks, which influenced the performance of the bank. Munusamy, Chelliah, & Mun (2010) and Ozatac, Saner, & Sen (2015) stated that customer satisfaction is dependent on the establishment of strong relationships. Berry (1997) put forward four essential approaches which are transaction surveys, complaints handling, feedback and inquiries, market research, and employee surveys. Franke (1998) said that bank transformation is influenced by innovations on financial products and information technology, which affects product positioning and range. Nath, Schrick, & Parzinger (2001) and Malik (2014) stated that there is a need for banks to retain customers and increase market share, which would make sophisticated and low-cost technology very crucial. McMahon et al. (2014) opined that universal service policies and political promises result in rural communities being unprofitable for providers, where typically regulators are removed from local realities. Shabibir, Rehma, & Shabibir (2016) found both automated and traditionally provided services had direct and significant effect on satisfaction. The findings of Lee & Hwan (2005) and Ennew & Binks (1999) suggested that perceived quality is an antecedent of attitude and they are directly associated with satisfaction, purchasing intention, and profitability. Kolbe & Brenner (2006) stressed the increasing importance of self-services because of growing use of internet. Nyaga 2014 surveyed platforms in EAC member states with recommendations of legislative and regulatory modification in order for mobile money to be adopted. Sanjapan (2017) proposed high switching costs can deter customers from switching despite their dissatisfaction with the product, implying the presence of switching costs as a factor of satisfaction. Zhu, Wymer, & Chen (2002) revealed the role of information technology (IT) based services both directly affecting the dimensions of SERVQUAL and indirectly affecting perceived quality/satisfaction. Jun & Cai (2001) argued that reliability, responsiveness, access and accuracy are major sources of satisfaction or dissatisfaction.

1.4.3. Studies on Rural Banks

The studies related with the focus areas of rural banks. Giardini & Fres (2008) argue that the emotional competence of employees towards the customer is represented by positive affect during encounters and has a direct impact on the customer's evaluation. Ga & Noa (2015) and Adil (2013) identified five dimensions namely price, security, perceived risks, responsiveness and assurance that improve the satisfaction related to online banking services in Nigeria. Sura (2008) and Soni & Kapre (2012) noted that although the performance of RRBs is improving, issues related to transparency are damaging the banker- to customer relationship in the country; the expansion of branches in backward areas could increase the benefits. Mengi (2009), Toor, Hunain, Hussain, Ali, & Shahid (2016) and Rahman (2013) determined the significant correlations between advanced services, cost & prestige, & consumer satisfaction. A non-significant relationship of basic services to satisfaction was found, although a positive relationship existed on loyalty. Mohammad, Yakubu, Bawuro & Magaji (2016) and Melnic (2016) emphasised that customers believe that banks should do what is best for them and that they should do whatever is required to provide simple and personal information to customers. Rao & Rao (2014) and Biswas (1993) wrote that the growth of the banking sector is rapidly growing in India but still there is some challenges of rural credit societies. Reddy & Prasad (2011) noted on the need to pay attention to RRBs for economic growth, but noted their performance was under-quantified even three decades later. Chiguvi & Guruwo (2017) found positive correlation between customer satisfaction and their loyalty and they recommended that bank should focus

on enhancing customer satisfaction in order to build customer loyalty.

This study attempts to serve three objectives: (a). To measure the level of customer satisfaction based on the innovative services provided by Manipur Rural Bank. (b). To evaluate the impact of the factors on customer satisfaction in the study area. (c) To offer constructive suggestions based on the findings of the study. The relationship between customer satisfaction and service quality metrics will be examined using correlation analysis, and the impact of service quality on customer satisfaction will be examined using regression analysis.

1.5. Research Methods

Based on the existing literature, in this study, quantitative research method has used the procedure of structured questionnaire to validate the SERVQUAL model. The tangible factors that were studied were Tangibility, Reliability, Responsiveness, Assurance, Empathy and Satisfaction. To determine a relationship between the quality of service (QS) and customer satisfaction, quantitative methods were applied, such as regression and correlation methods which quantified the relationships between customer satisfaction and the factors that influence the quality of service (QS).

1.5.1 Sampling Design and Sample Size

The study began in a multiple stage random sampling procedure which then used purposive and convenience sampling. A self-administered questionnaire was distributed to 360 respondents randomly from seven branches in Imphal West District and five branches in Imphal East District. Only savings account holders were selected in order to maintain the homogeneity of the sample and the random error that possible would occur due to difference in the sample by the district (Calder, Philips & Tybout, 1981; Assael & Keon, 1982).

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1.5.2 Research Scale Instrument

The questionnaire was organised into two parts. Part 1 was used to gather demographic data (age, gender, occupation, annual income, educational qualification, current services provided by the respondent's bank). Part 2 was a measure of customer's perceptions to the quality dimensions of service and their agreement to statements relating to satisfaction. A five-point Likert scale was employed; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

1.5.3 Data Analysis Method

The analysis of the data has been done using the software programme of Statistics Package for Social Sciences (SPSS) Version 21. Descriptive statistics (frequency distributions) summarised demographic variables of the respondents. Correlation coefficients were used to study the relationships between the service quality and its five dimensions and customer satisfaction. Finally, results from regression analysis were used to specify the most important dimensions of service quality that could predict satisfaction.

1.5.4 Research, Validity and Reliability

Pretesting was done in order to make sure that the questionnaire was fair and accurate. Guides to Exercise - Experts reviewed its content to ensure that all of the intended constructs were represented. Reliability was measured using Cronbach's alpha resulting in 0.837 for the 12 items assessing quality dimensions of the services and satisfaction - well above the acceptable level and indicating a reliable tool.

1.6 Analysis and Interpretations

The data analysis and interpretation of the gathered data are presented in this part. It demonstrates the application of statistical tools like frequencies, mean, correlations, and regression analysis

Table 1.2: Profile of the Sample Respondents

Variables		Frequency	Percentage
Age	20-Below	5	1.5
	20-30	78	21.67
	30-40	213	59.17
	40-50	30	8.33
	50-Above	34	9.44
Gender	Male	226	62.78
	Female	134	37.22
Marital Status	Single	77	21.39
	Married	267	74.17
	Divorce	10	2.78
	Widow	6	1.67
Educational Qualification	Primary	2	0.6
	High School	190	52.78
	Secondary	62	17.22
	Graduate	54	15
	Post Graduate	46	12.78
	Others	6	1.67
Occupation	Cultivator	156	43.33
	Services	122	33.89
	Business	24	6.67
	Homemaker	30	8.33
	Others	28	7.78

Source: Computed from the primary data

Table 1.2 shows profile of the sample respondents, most of the respondents (59.17 percent) were aged between 30-40 years. 62.78 percent of them were male. 52.78 percent had only a high school qualification or higher secondary. Majority (74.17 per cent) were married and the main sources of their income according to their reply were from cultivations (43.33 per cent).

1.6.1 Factor Analysis

In order to understand the determining elements and critical dimensions that customers in Manipur take into account when interacting with rural banks, factor analysis was constructed. As demonstrated in the tables below, the five key service quality factors that have the greatest influence on bank clients are tangibility, reliability, responsiveness, assurance, and empathy.

Table 1.3: Agreement level of Service Quality Dimensions on Tangibles Infrastructure

Tangible Infrastructure	M	SD	Interpretation
1. Parking space and seating Lounge	2.90	0.62	Moderately adequate
2. Pleasant and Attractive Décor	3.07	0.71	Adequate
3. Internet Facility	3.70	0.94	Adequate
4. Convenient branch location	3.71	0.82	Adequate
Reliability coefficient (Cronbach's Alpha): 0.799 **Eigenvalue** : 1.642 **Variance Explained** : 4.393			

Table 1.3 shows that bank services offered by banks are well satisfactory to respondents. The banks have adequate level of tangible assets as illustrated by mean ratings ranging from 2.90 to 3.71. Except for statement, "Parking space and seating lounge" that was given the "moderately

adequate" rating of 2.90, the overall perception of the branch location was excellent (mean 3.71), which indicates a pleasant and attractive decor. There is also the presence of a solid internet connexion (mean 3.70). Respondents who rated the parking area to be moderately adequate did not like it, which would seem to indicate that the banks have not addressed this physical need as much as necessary.

Table 1.4: Agreement level of Service Quality Dimensions on Reliability

Reliability	M	SD	Interpretation
1. Delivery of services on time	4.34	0.58	Highly Reliable
2. Safe and Secure Transactions	4.85	0.69	Highly Reliable
3. Accuracy and Safety of Records	4.21	0.75	Highly Reliable
4. Employees resolve customers' problems swiftly	2.09	0.78	Low Reliability
Reliability coefficient (Cronbach's Alpha): 0.723 **Eigenvalue** : 10.765 **Variance Explained** : 36.980			

According to the results of Table 1.4, which identify the application of service quality characteristics in the context of dependability, respondents consider the services of the bank in terms of dependability to be moderately reliable with mean scores ranging from 2.09 to 4.85. These findings show that the services of the banks are trustworthy and reputable. The only outlier was statement#4 - "Employees quickly resolve customers 'complaints'" which received a low mean rating.

Table 1.5: Agreement level of Service Quality Dimensions on Responsiveness

Responsiveness	M	SD	Interpretation
1. Employee willingness to help customers	3.80	0.52	Highly Responsive
2. Providing Swift Services to the customers	3.72	0.85	Highly Responsive
3. Providing special care to special customers	3.55	0.81	Highly Responsive
4. Employees' response to customer request	3.76	0.89	Highly Responsive
Reliability coefficient (Cronbach's Alpha : 0.784 **Eigenvalue** : 1.848 **Variance Explained** : 6.021			

Table 1.5 determined the extent of responsiveness of the respondent banks to their customers as a service quality dimension. All statements received high amount of respondent. The highest mean rating (3.80) is from "Providing special care to special customers." This is followed by responsiveness of the employees to customer requests (3.72) and providing swift services to customers (3.55). Overall, Bank responsiveness is reliable as evidenced by the high mean ratings. The only exception is "Employee willingness to act for the benefit of customers," which showed a lower impact.

Table 1.6: Agreement in the Application of Service Quality Dimensions— Assurance

Assurance	M	SD	Interpretation
1. Fast and efficient delivery of services to the customers	2.23	0.66	Less Assurance
2. Politeness of the employees	3.32	0.83	Moderate Assurance
3. Customers can trust the employees of the bank	3.96	0.91	Moderate Assurance
4. Employees inform the customer exactly the time required to perform the duty	3.80	0.94	Moderate Assurance
Reliability coefficient (Cronbach's Alpha) : 0.807 **Eigenvalue** : 2.371 **Variance Explained** : 8.976			

Table 1.6 reveals the assurance of the banks towards the customer services. Trust in employees, which was rated as the highest mean score (3.96), was followed by employees properly informing customers of the time needed to carry out a duty (3.80), and employee politeness (3.32). The service described in statement number 1 was given less assurance. Since of a high number of customers, it took the bank longer than anticipated to settle accounts.

Table 1.7: Agreement in the Application of Service Quality Dimensions— Empathy

Empathy	M	SD	Interpretation
1. Convenient working hours	3.94	0.56	High Empathy
2. Banks understand customers' needs	2.39	0.77	Moderate Empathy
3. Individual attention to customers	3.98	0.81	High Empathy
4. Customer complaints are resolved quickly	2.63	0.97	Moderate Empathy
Reliability coefficient (Cronbach's Alpha) : 0.839 **Eigenvalue** : 1.243 **Variance Explained** : 4.287			

Table 1.7 assess an agreement with the empathy dimension. Excluding the statements "Bank understands customers requirement" & 4 Customer concerns are resolved quickly, the rest of the respondents indicated a fair amount of empathy in their answer. On a whole, the respondents had a high level of sympathy for the services offered, suggesting that the banks are fairly attuned to the emotional needs of their customers.

1.6.2 Correlation Analysis

In this study, the correlation statistical method was used to investigate the hypothesized relationships between the two variables, service quality and customer happiness. Table 1.8 presented the analysis's findings.

Table 1.8: Correlation Analysis of the Variables: Service Quality and Customer Satisfaction

	Variables	Mean	St. Dev	Cor	1 Service Quality	2 Customer Satisfaction
1	Service Quality	4.146	.49052	Cor	1	.669
2	Customer Satisfaction	1.600	1.2334	Cor	.669	1

Control Variables: Age, Gender, Occupation, Education Qualification, and district

N.B. *: Correlation is significant at the 0.05 level (2-tailed)

**: Correlation is significant at the 0.01 level (2-tailed)

Table 1.8 indicates the correlation analysis between the two variables. From the result, it is clearly shown that there is a positive relationship between the variables namely service quality and customer satisfaction at $p <$ .01 level of significance. Specifically, there is a strong positive relationship between service quality and customer satisfaction reliability with $r = .669$ at $p < .01$. The findings reject the null hypothesis that there is no relationship between these variables. This suggests that these two factors, which are important for the potential expansion of rural banks in the state, should be continually stressed by the responding banks in their operations. Additionally, these findings were in line with other research that supported the link between satisfactory customer service and service quality (Jalagat, et al, 2017). Moreover, it also supports the conclusion of a study conducted by Hamzah et al. (2015) in Malaysia that customer satisfaction and service quality are directly related.

1.6.3 Multiple Regression Analysis

The research hypotheses were put to the test using multiple regression analysis. Since the sample size for this investigation was not very

large, it was deemed sufficient to employ multiple regression analysis. Table 7 shows that the analysis is statistically significant (P 0.01) and that the five factors that determine service quality account for around 65% (R2 = 0.65) of total customer satisfaction.

Table 1.9: Service Quality Dimensions Regression Analysis

Model	Unstandardized Coefficient		Standardized Coefficient	Hypotheses	t	Sig.
	B	Std. Error	Beta			
(Constant)	2.192	.4384			7.235	.000
Reliability (RL)	.141	.060	-.122	H1	.2.2338	**.030**
Assurance (AS)	.061	.055	.060	H2	1.119	.164
Responsiveness (RP)	.098	.056	.092	H3	1.699	.090
Tangible Infrastructure (TI)	.123	.102	.101	H4	2.975	**.002**
Empathy (EP)	.162	.057	.143	H5	2.830	**.004**

Adjusted R^2 = 0.650
F = 47.310
Sig. = 0.000
a. Dependent Variable: Satisfaction

The coefficient values demonstrate that Empathy (H5) with a 0.004 significance level and reliability (H1) with a 0.030 level are better predictors of customer satisfaction. Thus, higher support is provided for Hypothesis 4 (P < 0.01) suggesting that the tangible infrastructure of responding banks has enough tangibles as evidenced by the results reflecting a better predictor of customer satisfaction. Low support has been found, however for Hypotheses 2 and 3 that focus on the assurance aspect of a bank, their approachable and receptive aspect, and awareness or responsiveness provided. Therefore, based on these theories, the following equation can be formed:

Y=b0 +b1x1+b2x2 + b3x3

Overall satisfaction = 2.192 +0.030 (RL) + 0.002(TI) + 0.004 (EP)

Where OR = Overall Reliability and RL= Reliability TI = Tangible Infrastructure and EP = Empathy.

The formula indicates that for each one unit increase in overall reliability, the customers satisfaction is increased by 0.040. Each one unit increase in tangible infrastructure increases satisfaction by .003. Empathy gives 0.005 to the satisfaction. Thus, bank care and connexions with their customers is the most reliable predictor of satisfaction.

1.7 Conclusion and Recommendation

The study measured the quality of services in relation to customer satisfaction of the Manipur rural bank by applying SERVQUAL model. Results show that there is a significant correlation between the quality of service and customer satisfaction. Consistent with previous research (Gillani & Awan, 2014), the higher the service quality, the greater the satisfaction. The mean scores show that the services offered by the banks were rated by respondents to be in the moderate to high-range suggesting an overall satisfaction. Regression analysis showed that the areas of reliability, tangible infrastructure, and empathy are areas that the banks should give the most attention and may be those areas where assurance and responsiveness are less of a priority. Although these latter variables were not statistically significant, other research has pointed to the importance of these variables so they should not be ignored. Recommendations: improve the services to achieve a very satisfactory level, especially in the grass roots where the level of satisfaction is moderate. By strengthening the most significant driving forces - reliability, physical infrastructure and

empathy - more constructive response will ensue. In addition, retain emphasis on assurance and responsiveness, because mean ratings indicate moderate satisfaction in these areas. The problems identified in the study included willingness of employees to help, quick problem resolution, and quick, efficient provision of services. Banks have to tackle these immediately because they play a role in the quality of their service. Continuously improve online and mobile banking as to be more user-friendlier and accessible. As Manipur Rural Bank is new, not a lot of branches are in place, thus in the future research can use the SEQUAL approach and benchmarking with other service providers where applicable.

References

[1] Anderson, Eugene W., and Mary W. Sullivan (1993). The Antecedents and Consequences of Customer Satisfaction for Firms. *Marketing Science*.l2 (2), 125-43.

[2] Anderson, Eugene W., Claes Fornell and T. Rust (1997). Customer Satisfaction, Productivity, and Profitability: Differences Between Goods and Services. *Marketing Science*.16 (2), 129-45.

[3] Anderson, Eugene W., Claes Fornell, and Donald R. Lehmann (1994). Customer Satisfaction, Market Share, and Profitability: Findings from Sweden. *Journal of Marketing.* 58, 53-66.

[4] Baregheh, A., Rowley, J., & Sambrook, S. (2009). Towards a multidisciplinary definition of innovation. *Management Decision.47, 1323*-1339.

[5] Barsky, J.D. (1992). Customer Satisfaction in the Hotel Industry: Meaning and Measurement. *Hospitality Research Journal.*16(1),51-73.

[6] Bearden, William 0, and Jesse E. Teel (1983). Selected Determinants of Consumer Satisfaction and Complaint Reports. *Journal of Marketing Research.* 20,21-28.

[7] Berry, L.L and Parasuraman, A. (1997). Listening to the Customer: The Concept of Service Quality Information System. *Sloan Management Review*.38.65 - 67.

[8] Bilgili, B, and Ünal, S. (2008). Kano Model Application for Classifying the Requirements of University Students", *MIBES Conference*.31-46.

[9] Bolton, Ruth N. and James H. Drew (1991). A Longitudinal Analysis of the Impact of Service Changes on Customer Attitudes. *Journal of Marketing*.55,1-9.

[10] Churchill, Gilbert A. and Carol Surprenant (1982). An Investigation into the Determinants of Consumer Satisfaction. *Journal of Marketing Research*. pp 491-504.

[11] Cronin, J. and Taylor, S. (1994). SERVPERF versus SERVQUAL - "Reconciling performance-based and perceptions minus expectations measurement of service quality". *Journal of Marketing*.58, (1).

[12] Edvardsson, B., Gustafsson, et al. (2000). *New Service Development and Innovation in the New Economy*.

[13] Fornell, Claes (1992).A National Customer Satisfaction Barometer: The Swedish Experience. *Journal of Marketing*.56,6-21.

[14] Franke, Gunter (1998). Transformation of Banks and Bank Services. *Journal of Institutional and Theoretical Economics*, 154(1), 109 - 133.

[15] Gupta, S and Aggarwal, A. (2014) Financial Innovations and Technologies: Indian Economy 2020. *IOSR Journal of Business and Management.* 16, (2), 62-67.

[16] *Innovation Measurement*, 72 Fed. Reg. 18627 (April 13, 2007)

[17] Kano, N., Seraku, N., et al (1996). "Must-be Quality and Attractive Quality". *The Best on Quality*.7: 165.

[18] Krishnan M.S, Ramaswamy Venkataram, Meyer Mary C.and Damien Paul (1999). Customer Satisfaction for Financial Services: The Role of Products, Services, and Information Technology. *Management Science: Performance of Financial Institutions*, 45, (9),1194-1209.

[19] LaBarbera, Pricilla A. and David Mazursky (1983). A Longitudinal Assessment of Consumer

Satisfaction/Dissatisfaction: The Dynamic Aspect of the Cognitive Process. *Journal of Marketing Research*.20 (November), 393-404.

[20] Lee H., Lee Y., Yoo D. (2000). "The determinants of perceived quality and its relationship with satisfaction", *Journal of Services Marketing*.14(3).

[21] Malik, Seema (2014). Technological Innovations in Indian Banking Sector: The changing face of Banking. *International Journal of Advanced Research in Computer Science and Management Studies*. 2(6), 122-128.

[22] Nadiri H, and Hussain K. (2005), "Diagnosing the Zone of Tolerance for Hotel Services", *Managing Service Quality*.15(3),261.

[23] Oliver, Richard L. (1980).A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*.17 (November), 460-69.

[24] Oliver, Richard L. and John E. Swan (1989a). Consumer Perceptions of Interpersonal Equity and Satisfaction in Transactions: A Field Survey Approach. *Journal of Marketing*.53 (April), 21-35.

[25] Parasuraman, A.; Valarie A. Zeithaml, and Leonard J. Berry (1988). SERVQUAL: A Multiple Item Scale for Measuring Customer Perception of Service Quality. *Journal of Retailing*.64 (Spring), 12-37.

[26] Rao, S.C (2002). The Dynamics of Customer Service. *IBA Bulletin*. 116

[27] RBI: Reserve Bank of India (2015), Trend and Progress of Banking in India.

[28] Reddy. B. R, Reddy. S. V and Sakunthala,B (2000). Customer Service in Banks. *Banking Finance*.8-9.

[29] Roshnee, R., and Fowdar, R. (2007), "Developing a Service Quality Questionnaire for the Hotel Industry in Mauritius", *Journal of Vacation Marketing*.13(1), 21.

[30] Rust, R. T., and Anthony J. Z (1993). Customer Satisfaction, Customer Retention, and Market Share.*Journal of Retailing*. 69 (2),193-215.

[31] Rust, R. T., Christine Moorman, and Peter R. D (2002). Getting Return on Quality: Revenue Expansion, Cost Reduction, or Both. *Journal of Marketing*.65, 7-24.

[32] Saleh, F. and Ryan, C (1992), "Client Perceptions of Hotels – A Multi-attribute Approach", *Tourism Management*.13(92),163-168.

[33] Yoo, D.K. & Park, J.A. (2007). Perceived service quality – Analyzing relationships among employees, customers, and financial performance. *International Journal of Quality & Reliability Management,* 21(9): pp.908-926.

[34] Zeithaml, V, A. & Bitner, M, J. (2003) Service Marketing: Integrating Customer Focus Across the Firm. *New York: McGraw-Hill Higher Education*.

[35] Zeithaml, V, A. & Bitner, M, J. (2009) Service Marketing: Integrating Customer Focus Across the Firm. *New York: McGraw-Hill Higher Education*.

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INTERRELATIONSHIP BETWEEN SOCIO-CULTURAL VALUES AND ENTREPRENEURSHIP IN INDIA: A STUDY OF TRIBAL CULTURE IN JHARKHAND

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Abstract

This study analyzes the impact of social and cultural values on the development of entrepreneurship in India, particularly in the comparative context of tribal culture in Jharkhand and the mainstream social structure of Bihar. The theoretical foundation of the study is based on classical and modern thinkers such as Max Weber, Joseph Schumpeter, David McClelland, Amartya Sen, and Geert Hofstede, who demonstrate that entrepreneurship is not merely an economic process but is deeply influenced by socio-cultural contexts. The study finds that factors such as family, caste, religion, education, social networks, and social background determine the nature and direction of entrepreneurship in India. The tribal culture of Jharkhand, which is based on collectivism, equality, and a nature-oriented lifestyle, promotes inclusive and sustainable entrepreneurship. Here, enterprises based on Self-Help Groups (SHGs), Non-Timber Forest Products (NTFPs), and traditional knowledge are prominent, contributing to women's empowerment and local development. The study concludes that socio-cultural contexts deeply influence the type, level, and success of entrepreneurship. Therefore, to promote entrepreneurship in India, positive changes in education, social inclusivity, financial access, and cultural perspectives are necessary.

Keywords: Socio-cultural values, entrepreneurship, tribal culture, sustainable entrepreneurship, inclusive entrepreneurship, Jharkhand, Hofstede's cultural dimensions

1. Introduction

Entrepreneurship is not merely an economic process but is deeply embedded in social and cultural contexts. Max Weber (1930) considered religious-cultural values as the foundation of capitalist development, while Geert Hofstede (1980) explained risk-taking and innovation through cultural dimensions such as uncertainty avoidance and individualism. In Indian society, family, caste, religion, and community networks shape entrepreneurial behavior (Bhoganadam & Srinivasa Rao, 2015).

2. Theoretical Framework and Literature Review

2.1 Classical Theories

Joseph Schumpeter (1934), in *The Theory of Economic Development*, described the entrepreneur as an "agent of creative destruction." According to him, entrepreneurs dismantle existing production systems and establish new technologies, markets, and organizational structures. This process depends on cultural values—where societies encourage innovation and change, entrepreneurship flourishes. In the Indian context, where traditional values are strong, cultural barriers such as risk aversion pose challenges to adopting Schumpeterian innovation.

David McClelland (1961), in *The Achieving Society*, identified the need for achievement as the core foundation of entrepreneurship. He argued that societies with achievement-oriented values tend to have higher levels of entrepreneurship. Family, education, and social norms can either stimulate or suppress this motivation. In India, the joint family system may encourage achievement motivation, but caste-based constraints and security-oriented thinking can weaken it.

2.2 Theory of Social Freedom and Development

Amartya Sen (1999), in *Development as Freedom*, linked social freedom, equality, and capabilities with economic development and entrepreneurship. According to him, individual entrepreneurial potential can fully develop only when social barriers such as caste, gender, or regional inequality are reduced. Tribal communities in Jharkhand, with their egalitarian structures, support Sen's theory, whereas hierarchical caste structures in Bihar restrict such freedom.

2.3 Contextual Entrepreneurship

Friederike Welter (2011), in "Contextualizing Entrepreneurship," emphasized the social context as a central element in entrepreneurial analysis. She argued that entrepreneurship is influenced by local social networks, cultural norms, and institutional environments. This perspective is especially relevant for developing countries, where family networks and community support determine entrepreneurial success. Community enterprises based on SHGs in Jharkhand are a direct example of Welter's contextual model.

2.4 Institutional and Cultural Linkages

Zoltan J. Acs et al. (2008), in *Small Business Economics*, established a relationship between cultural values, institutions, and economic development. Using Global Entrepreneurship Monitor (GEM) data, they showed that entrepreneurship rates are higher where cultural dimensions (such as low uncertainty avoidance in Hofstede's model) are favorable. In India, high uncertainty avoidance and collectivism tend to limit entrepreneurship, whereas tribal cultures promote sustainable entrepreneurship through nature-centric values.

In the Indian context, Bhoganadam and Srinivasa Rao (2015), in their study *"A Study on Socio-Cultural Factors Influencing Indian Entrepreneurship: A Critical Examination"* (published in the *International Journal of Applied Engineering Research*), identified six major socio-cultural factors influencing entrepreneurship. These factors affect different stages of entrepreneurship such as emergence, establishment, growth, and success. Based on literature review, the authors proposed a conceptual framework linking these factors with entrepreneurial behavior.

The Six Key Factors Are as Follows:

i. Family Background: Family is the strongest foundation of entrepreneurship. In India, the joint family system provides financial resources (seed capital), social capital, business experience, skill transfer, and risk tolerance. Traditional business communities (such as Marwaris, Gujarati Banias, and Chettiars) train children in business from an early age, increasing entrepreneurial potential. Family support (emotional and financial) enables individuals to restart after failure. Conversely, job-oriented or risk-averse families may discourage entrepreneurship. This factor is linked to the Resource-Based View and Social Capital Theory.

ii. Education: Education enhances problem-solving ability, innovation, market understanding, and managerial skills. Individuals with higher education (especially in management, engineering, and technical fields) are more likely to start modern and scalable enterprises such as startups. In India, lack of education—especially in rural and tribal areas—limits enterprises to subsistence-level activities. This factor is associated with Institutional Theory and Human Capital Theory.

iii. Caste: In India, the caste system has historically determined occupational roles. Some castes (such as Vaishyas, Banias, and Khatris) are traditionally associated with trade and entrepreneurship, giving them access to

strong networks, market knowledge, and capital. Other castes (especially marginalized or Dalit communities) face social barriers, discrimination, and lack of resources, limiting entrepreneurship. Thus, caste has a dual effect—positive for some groups and restrictive for others.

iv. Religion: Religion influences ethical values, beliefs, risk-taking behavior, and business ethics. In Jainism, Sikhism, and certain Hindu traditions, business is often considered a moral duty. However, some religious beliefs (such as excessive emphasis on fatalism or karma) may reduce risk-taking. Religion provides normative legitimacy to entrepreneurship, echoing Max Weber's Protestant Ethic thesis.

v. Social Networks: Social networks play a crucial role in identifying opportunities, mobilizing resources, accessing information, and reaching markets. In India, caste- and community-based networks (such as Gujarati business networks or tribal SHGs) strengthen entrepreneurship. These networks foster trust-based business relationships and reduce dependency on intermediaries. This factor aligns with Social Networking Theory and is essential at all stages of entrepreneurship.

vi. Social Background: This is a broader factor including income level, region (urban/rural), gender, language, regional culture, and social status. Urban middle classes tend to be more innovation-oriented, while rural or backward areas are dominated by subsistence entrepreneurship. Gender discrimination limits women's entrepreneurship, although SHGs have improved participation. This factor is contextual and linked to Welter's (2011) framework.

3. General Impact of Social and Cultural Values (General Impact in Indian Context)

India is a pluralistic society where social and cultural values deeply influence the development, nature, and direction of entrepreneurship. These values shape an individual's risk-taking ability, innovative tendencies, and resource mobilization processes, while at the societal level they determine the availability of opportunities, legitimacy, and the structure of economic activities.

The following section presents a detailed analysis of key factors, with particular emphasis on Hofstede's cultural dimensions, family system, caste structure, and religious-ethical values.

3.1 Joint Family System and Social Capital

In Indian society, the joint family system provides a strong foundation for entrepreneurship. It not only offers financial resources (such as seed capital and pooled funds) but also contributes social capital, business experience, skill transfer, and emotional support.

In traditional business families, knowledge is transferred across generations, which enhances risk tolerance and ensures business continuity. For example, among Marwari and Gujarati families, the joint family system has laid the foundation for large business empires (such as Birla, Bajaj, and Ambani), where collective decision-making and shared resource utilization have strengthened entrepreneurship.

However, the joint family system also has certain limitations. Collective decision-making can sometimes restrict individual innovation and independent initiative. Additionally, family pressure and traditional thinking (such as preference for security) may discourage risk-taking.

Recent studies indicate that joint families tend to be more economically successful (with a higher proportion among high-income households) as they provide economies of scale and reduce costs. Nevertheless, with modernization and the growing trend toward nuclear families, these advantages are gradually declining.

3.2 Uncertainty Avoidance and Hofstede's Cultural Dimensions

According to Geert Hofstede (1980), India scores 40 on the Uncertainty Avoidance Index (UAI), which is significantly lower than the global average (65). This indicates a moderate

to low level of intolerance toward uncertainty and ambiguity. People tend to be relatively flexible and adaptable in uncertain situations, which is favorable for entrepreneurship (e.g., rapid experimentation in startup culture).

However, other cultural dimensions such as high Power Distance (77) and Collectivism (low Individualism) tend to promote risk aversion. Social hierarchy and family/community expectations make failure socially undesirable, leading many individuals to prefer secure jobs (especially government employment).

As a result, entrepreneurship often remains subsistence-based or small-scale, while large-scale innovative ventures are relatively limited.

3.3 Caste System and Entrepreneurial Opportunities

The caste system influences entrepreneurship in India in a dual manner. Certain communities (such as Vaishya/Bania, Marwari, Agarwal, Oswal, Jain) have historically been associated with trade and commerce. Strong social networks, trust-based credit systems, market knowledge, and traditions of capital accumulation have made them prominent in entrepreneurship. Marwari and Bania communities have successfully transitioned from trade to industry from the colonial period to modern India, and they continue to dominate large industrial houses. On the other hand, other caste groups (especially Scheduled Castes, Scheduled Tribes, and backward classes) face barriers due to social discrimination, lack of resources, and unequal access to education and networks. Limited social mobility based on caste creates entry barriers for new entrepreneurs. Although modern initiatives such as reservations, government schemes, and Self-Help Groups (SHGs) have improved inclusivity to some extent, caste continues to influence the structure of entrepreneurship.

3.4 Religion, Ethical Values, and Trust-Based Relationships

Religion plays a significant role in shaping ethical values, work culture, and business relationships in Indian entrepreneurship. Max Weber (1930) identified the Protestant Ethic as the foundation of capitalism, but in the Indian context, elements of Hindu, Jain, and Sikh traditions (such as non-violence, truth, and charity) strengthen honest and long-term business relationships.

Jain and Vaishnav traditions often view business as a moral duty, which reinforces trust-based credit systems and networks. Religious values promote trust, which is crucial in Indian business practices (e.g., informal credit systems).

However, certain religious beliefs (such as karma theory and fatalism) may discourage risk-taking or innovation. Recent meta-analyses suggest that the impact of religion on entrepreneurship in Hindu contexts may be mixed or negative, whereas Islamic and Jewish traditions show more positive effects.

Ethics and social responsibility (such as CSR) in Indian entrepreneurship are also influenced by religious values. Overall, social and cultural values in India influence entrepreneurship in both positive (social capital, networks, ethics) and negative (risk aversion, hierarchy, inequality) ways. These factors create regional and community-based variations (e.g., tribal egalitarianism in Jharkhand versus hierarchical structures in Bihar). To promote entrepreneurship, positive transformations in these values—through education, inclusivity, and risk tolerance—are essential.

4. Impact of Tribal Culture and Social Structure in Jharkhand

The tribal culture of Jharkhand—comprising major tribes such as Santhal, Munda, Ho, Oraon, and Kharia—is primarily based on collectivism, a nature-centric lifestyle, traditional knowledge systems, and an egalitarian social structure. This culture emphasizes community welfare over individual profit, environmental conservation, and intergenerational skill transfer. As a result, entrepreneurship in this region develops mainly in a sustainable, inclusive, and livelihood-oriented form, which differs from large-scale profit-driven enterprises.

4.1 Collectivism and Inclusive Entrepreneurship

In tribal society, the sense of "we" is stronger than "I." Collective management of resources (land, forest, water) and decision-making through the Gram Sabha (village assembly) strengthen inclusive models. Self-Help Groups (SHGs) and cooperative enterprises are key expressions of this system. SHGs organize women and promote financial literacy, access to credit, and collective production.

For example, in Jharkhand, SHGs have empowered women in sectors such as lac, mahua, tendu leaves, and handicrafts. In districts like Khunti and West Singhbhum, women's participation in NTFP-based entrepreneurship is higher than that of men (44% vs. 36%), largely due to SHGs and cooperatives. The community structure includes all groups (women, youth, elderly) in decision-making, ensuring gender and social equality. This aligns with Welter's (2011) contextual entrepreneurship theory, where local social networks determine entrepreneurial success.

4.2 Nature-Based Sustainable Entrepreneurship

Tribal life is closely linked to forests, water, and land, leading to economic activities centered around Non-Timber Forest Products (NTFPs). These products are eco-friendly and sustainable, as tribal traditions prevent over-exploitation of resources.Major NTFPs include mahua (flowers, oil, liquor), lac, tendu leaves, honey, tamarind, bamboo, medicinal herbs, and handicrafts (bamboo products, ironwork, traditional art). Women play a key role in the NTFP value chain, including collection (42% independently, 29% jointly), processing (drying, packaging), and marketing. Landless or marginal tribal women run enterprises through SHGs such as mahua-based products, lac processing, organic farming, and handicrafts. These activities contribute 20–40% of annual income. This model aligns with Sustainable Development Goals (SDGs), focusing on environmental conservation, gender equality, and poverty reduction. According to the FICCI-SEDF (2021) report, such enterprises in districts like Gumla and Khunti reduce migration and promote self-reliance.

4.3 Role of Traditional Knowledge and Skills

Traditional knowledge passed across generations (e.g., organic farming, medicinal plant use, handicrafts) forms the foundation of entrepreneurship in tribal communities.

This knowledge promotes low-cost, eco-friendly techniques and provides a competitive advantage in local markets (haat-bazaars). For example, tribal women produce high-quality lac products using traditional methods, which have demand in global markets. However, lack of integration with modern markets (branding, packaging, digital marketing) limits the full economic potential of this knowledge.

4.4 Key Challenges

Tribal entrepreneurship in Jharkhand faces several structural and cultural challenges:

- Lack of capital and financial access: Most enterprises are informal, with average monthly incomes between ₹3,000–5,000.
- Market access and marketing issues: Due to lack of transportation, branding, and value addition, middlemen capture most of the profits.
- Lack of modern technology and education: Low literacy (65–70% in many areas), lack of technical skills, and poor digital literacy limit growth.
- Risk aversion: Traditional orientation leads to subsistence-focused livelihoods with limited adoption of high-risk innovation.
- High rate of unregistered enterprises: 94–98% enterprises are unregistered, restricting access to schemes, credit, and markets.
- Other challenges: Patriarchal norms (in some areas), language barriers, and security issues in Naxal-affected regions.

5. Conclusion

This study clearly shows that entrepreneurship is not merely a result of economic opportunities but is deeply influenced by social and cultural

structures. In a diverse society like India, these influences vary regionally, as illustrated by the comparative context of Jharkhand and Bihar.

Jharkhand's tribal culture—characterized by collectivism, equality, nature-based living, and traditional knowledge—develops entrepreneurship as an inclusive, sustainable, and livelihood-oriented model. SHGs and NTFP-based activities promote not only economic empowerment but also social inclusion and women's empowerment. However, challenges such as lack of capital, market access, technology, and informality hinder its expansion. Theoretically, this study validates Schumpeter's innovation theory, McClelland's achievement motivation, Sen's concept of freedom, and Welter's contextual approach. It demonstrates that entrepreneurship flourishes where social equality, network support, and cultural flexibility are strong. For promoting entrepreneurship in India, economic policies alone are insufficient. Deep social transformation is required. Education and skill development must equip youth with practical skills, problem-solving abilities, and innovation capacity.Social inequalities—especially caste and gender—must be addressed to ensure equal opportunities and access to resources. Financial inclusion and market access are equally crucial. Modernizing traditional knowledge and integrating it with technology, branding, and market strategies can unlock vast potential. Finally, a cultural mindset that encourages risk-taking and accepts failure as a learning process is essential. In conclusion, the future of entrepreneurship in India depends not only on economic reforms but also on balanced social and cultural transformation. Without inclusivity, equality, and a positive attitude toward innovation, the vision of broad-based and sustainable entrepreneurship will remain incomplete.

References

1. Acs, Z. J., Desai, S., & Hessels, J. (2008). Entrepreneurship, economic development and institutions. *Small Business Economics, 31*(3), 219–234.
2. Bhoganadam, S. D., & Srinivasa Rao, D. (2015). A study on socio-cultural factors influencing Indian entrepreneurship: A critical examination. *International Journal of Applied Engineering Research, 10*(23), 43807–43812. https://www.ripublication.com/ijaer10/ijaerv10n23_85.pdf
3. FICCI-SEDF. (n.d.). *Tribal welfare and entrepreneurship development in Jharkhand: Turning challenges into opportunities and actions*. Ministry of Tribal Affairs, Government of India.
4. Gupta, A. (2022). Prospects and challenges of tribal entrepreneurship in Jharkhand. *Shodhshauryam Research Journal*.
5. Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Sage Publications.
6. Kerketta, S. R. (2024). Entrepreneurial development for the tribal women of Jharkhand. *International Journal of Novel Research and Development*, *9*(1). https://www.ijnrd.org/papers/IJNRD2401003.pdf
7. McClelland, D. C. (1961). *The achieving society*. Van Nostrand.
8. Schumpeter, J. A. (1934). *The theory of economic development*. Harvard University Press.
9. Sen, A. (1999). *Development as freedom*. Oxford University Press.
10. Shivani, S., Mukherjee, S. K., & Sharan, R. (2006). Socio-cultural influences on Indian entrepreneurs: The need for appropriate structural interventions. *Journal of Asian Economics*, *17*(1), 5–13.
11. Srinivasan, T. N. (2004). Entrepreneurship and economic growth in India. *Economic and Political Weekly, 39*(34), 3705–3710.
12. Weber, M. (1930). *The Protestant ethic and the spirit of capitalism*. Allen & Unwin.
13. Welter, F. (2011). Contextualizing entrepreneurship—Conceptual challenges and ways forward. *Entrepreneurship Theory and Practice*, *35*(1), 165–184

EFFECTIVENESS OF SKILL-BASED CURRICULUM IN ENHANCING EMPLOYABILITY SKILLS AMONG SENIOR SECONDARY STUDENTS IN JAMSHEDPUR

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Abstract
The growing gap between academic education and employment requirements has emerged as a major concern in the Indian education system. Traditional school curricula often emphasize theoretical knowledge while providing limited opportunities for practical skill development, resulting in low employability among school graduates. In response to this challenge, skill-based and vocational education has been introduced at the senior secondary level to equip students with industry-relevant competencies. The present pilot study examined the effectiveness of skill-based curriculum in enhancing employability skills among senior secondary students in Jamshedpur, an industrial city with significant employment potential. The study adopted a descriptive survey method and included a sample of 50 senior secondary students selected through random sampling. The sample comprised 25 students from skill-based or vocational streams and 25 students from traditional academic streams. Data were collected using a self-developed Employability Skills Questionnaire and a Student Perception Scale on Skill-Based Curriculum. The collected data were analyzed using percentage analysis, mean, standard deviation, and comparative analysis.

The findings revealed that students enrolled in skill-based curriculum demonstrated higher levels of employability skills such as communication, teamwork, problem-solving, adaptability, and basic technical skills compared to students from traditional academic streams. Skill-based students also showed greater confidence, better job readiness, and higher awareness of career opportunities. In contrast, students from traditional streams exhibited stronger theoretical knowledge but lacked sufficient practical exposure and workplace readiness. The study further identified challenges in the implementation of skill-based curriculum, including inadequate infrastructure, limited industry exposure, and insufficiently trained vocational teachers. The pilot study concluded that skill-based curriculum plays a significant role in enhancing employability skills among senior secondary students. The findings highlighted the need for strengthening vocational education through improved infrastructure, teacher training, school–industry collaboration, and integrated career guidance. The study provides a foundation for large-scale research and supports policy initiatives aimed at promoting skill-based education at the school level.

Key Words: Skill-Based Curriculum, Employability Skills, Vocational Education, Senior Secondary Education, Job Readiness

1. Introduction

In the contemporary era of globalization, rapid industrialization, and technological advancement, the nature of employment has undergone significant transformation. The traditional education system, which primarily emphasizes theoretical knowledge and rote learning, has often been criticized for failing to equip students with practical skills required in the modern workforce. As a result, there is a growing concern regarding the employability of school graduates, particularly at the senior secondary level.

India, with its vast youth population, faces the dual challenge of providing quality education and ensuring employment opportunities. According to national and international reports, a substantial proportion of Indian youth remain unemployed or underemployed due to a mismatch between educational outcomes and industry requirements. To address this issue, the Government of India has introduced several reforms such as the National Skill Development Mission, Skill India Initiative, and the inclusion of skill-based and vocational education at the school level.

Skill-based curriculum at the senior secondary stage aims to develop employability skills such as communication, problem-solving, teamwork, adaptability, digital literacy, and basic technical competencies. These skills enable students to either enter the workforce directly or pursue higher education with better preparedness. The Central Board of Secondary Education (CBSE) and state boards have introduced various vocational and skill-based subjects aligned with industry needs.

Jamshedpur, known as the "Steel City of India," is an industrial hub with a strong presence of manufacturing, engineering, and service industries. The city offers a unique context to study the effectiveness of skill-based education due to its proximity to industrial organizations such as Tata Steel and its allied enterprises. Despite the availability of employment opportunities, many students struggle to secure suitable jobs due to inadequate employability skills.

In this context, the present pilot study seeks to examine the effectiveness of the skill-based curriculum in enhancing employability skills among senior secondary students in Jamshedpur. The findings of the pilot study will help refine research tools, methodology, and provide insights for a larger-scale study.

2. Need and Significance of the Study

The rising rate of unemployment among educated youth has emerged as a serious concern in the contemporary education system. Despite possessing academic qualifications, many students fail to secure suitable employment due to a lack of practical skills, workplace readiness, and adaptability. Traditional school education has largely focused on theoretical knowledge and examination-oriented learning, which often does not meet the evolving demands of the job market. In contrast, employers increasingly seek individuals who possess employability skills such as communication ability, problem-solving skills, teamwork, technical competence, and a positive work attitude. This growing mismatch between educational outcomes and employment requirements highlights the urgent need for integrating skill-based learning within the school curriculum.

Senior secondary education plays a pivotal role in shaping students' future career paths, as it serves as a transitional stage between school education and higher education or employment. Introducing skill-based curriculum at this stage enables students to acquire practical knowledge, explore career options, and develop competencies that enhance their employability. Therefore, examining the effectiveness of skill-based curriculum at the senior secondary level is both timely and essential.

The educational significance of the present pilot study lies in evaluating whether the skill-based curriculum effectively enhances employability skills among students. By assessing students' skill levels and perceptions, the study provides evidence regarding the relevance and usefulness of skill-based education in preparing students for the workforce. This justification is crucial for strengthening the implementation of vocational subjects in senior secondary schools.

From a policy perspective, the findings of the study can assist policymakers and educational planners in improving vocational education programs. The study offers insights into the strengths and challenges of skill-based education, thereby supporting efforts to align school curriculum with local industry requirements and national skill development initiatives.

The local context of Jamshedpur further adds to the significance of the study. As an industrial city, Jamshedpur provides ample opportunities for practical exposure and industry interaction. The study examines whether schools are effectively utilizing this advantage to enhance students' employability skills.

Additionally, the study highlights the impact of skill-based education on student development, particularly in terms of confidence, career readiness, and job orientation. As a pilot study, it also contributes to future research by identifying limitations, refining research tools, and improving methodological approaches for large-scale investigations.

3. Review of Related Literature

1. Nugraha, H. D., Kencanasari, R. A. V., & Komari, R. N. (2020). ***Employability Skills in Technical Vocational Education and Training (TVET).***

Nugraha et al. (2020) aimed to identify the key employability skills necessary for graduates of technical and vocational education and training programs and to develop a framework for integrating these skills into the curriculum. Using a **literature review** methodology, the authors reviewed existing research on employability competencies in TVET-related fields and categorized the dominant skills needed. They found that social skills, communication, field-specific knowledge, ICT skills, management skills, creativity and innovation, problem-solving, and critical thinking are essential for employability, especially in vocational contexts. The study recommended that educational institutions redesign curricula to incorporate these competencies explicitly and align them with industry needs. However, the research was limited by its secondary nature, lacking empirical data from students or employers, and did not explore how these frameworks could be applied specifically within school contexts. This review highlights the foundational skills necessary for employability and reinforces the need for curriculum integration in senior secondary education to prepare students more effectively for the workforce.

2. Sharma, S. (2024). ***Enhancing Employability through Skill Development: A Study in the Context of NEP 2020.***

Sharma (2024) examined how national education reforms under India's National Education Policy (NEP) 2020 support the development of employability skills through vocational and skill-based education. The study utilized a **policy analysis and documentary review** approach to evaluate NEP strategies, initiatives, and practical implementation mechanisms. Findings indicate that NEP 2020 emphasizes practical skill-building, digital learning, and industry partnerships, which can potentially bridge the gap between academic learning and job market requirements. The author recommended strengthening teacher training, expanding vocational offerings, and enhancing collaboration with industry partners to improve outcomes. A research gap remains in assessing how these NEP interventions directly impact student employability at the senior secondary level, especially in specific local contexts like Jamshedpur. The study underscores the policy foundation for skill education while highlighting the need for empirical evaluation of its effectiveness in practice.

3. Ali, P. S. (2025). ***Skill-Based Education and its Impact on Lifelong Learning and Career Advancement.***

Ali's (2025) study explored the role of skill-based education in fostering lifelong learning and career progression among students and professionals. Using a **quantitative design** with convenience sampling and self-structured questionnaires, the research analyzed data from students and educators to assess relationships between skill-based education and adaptability, career development, and continuous learning. Results revealed a positive correlation between participation in skill-based education and

increased adaptability, career advancement, and lifelong learning capacities. The study recommended expanding skill-based learning opportunities and embedding them more deeply into formal education systems. However, limitations include the non-random sampling and a narrow focus on general skill learning rather than specific employability outcomes or vocational contexts. A gap exists in applying such findings specifically to senior secondary schools and the structured curricula that prepare students for employment. This study contributes to understanding skill education's broader impacts beyond immediate job skills.

4. Sulistiobudi, R. A., & Kadiyono, A. L. (2023). ***Employability of Students in Vocational Secondary Schools: Role of Psychological Capital and Student-Parent Career Congruence*****.**

Sulistiobudi and Kadiyono (2023) investigated how psychological capital (e.g., self-efficacy, resilience) and alignment between students' and parents' career expectations influence employability development in vocational secondary students. Using a survey design with 317 vocational school students in Indonesia, the study employed statistical analysis to examine relationships between personal and familial traits and employability outcomes. Results showed that both psychological capital and student-parent career agreement significantly affect students' perceived employability competence. The authors recommended including psychological support measures and family engagement in education programs. A research gap exists in exploring how curriculum design and instructional quality specifically foster employability skills, especially in formal senior secondary school settings outside vocational contexts, which this study did not address. This research highlights the importance of psychosocial factors alongside curriculum content in employability skill development.

5. ***Global Employability Skills in the 21st Century Workplace: A Semi-Systematic Literature Review*** **(2023).**

This semi-systematic review synthesized global research on employability skills, identifying essential competencies such as communication, problem-solving, teamwork, adaptability, and ICT literacy that employers consistently seek. Conducted through a structured literature review of studies over three decades, it highlighted significant **mismatches between employer expectations and graduates' skill levels**, suggesting that educational systems often fail to equip students with critical soft and technical skills. The review recommended that educators incorporate real-world problem-based learning, internships, and work-integrated learning to enhance employability. However, a gap remains in localized research within developing economies' school systems, particularly at the senior secondary level, and how curriculum design impacts skill acquisition. This work provides a broader framework for essential skills but lacks direct data on specific educational interventions or contexts like India's secondary schools.

6. Mahapatra, P., & Satapathy, S. (2016). ***Skills, Schools and Employability: Developing Skill-Based Education in Schools of India*****.**

Mahapatra and Satapathy (2016) explored the status and challenges of implementing skill-based education within Indian schools and its influence on employability. Through case analysis and literature discussion**,** the study observed that despite the clear advantages of skill education for youth employability, many schools lack adequate infrastructure, teacher training, and industry linkages to make skill education effective. The authors recommended strategic investments in facilities, teacher capacity building, and curriculum redesign to bridge the gap between academic outcomes and employability. A research gap identified is the need for empirical studies measuring student outcomes directly, rather than descriptive discussions. The study remains foundational for understanding school-level challenges but requires further targeted research in senior secondary contexts.

7. ***Vocational Education: The New Development and Change in the Adaptive Curriculum of Learning Model*** **(Barliana et al., 2024).**

Barliana et al. (2024) conducted **a** systematic literature review to assess the alignment between vocational education curricula and

industry requirements, highlighting that many vocational graduates lack the competencies required for employment due to outdated curricula and poor industry integration. The study emphasized the necessity of **adaptive curriculum models** that continuously update content based on employer feedback and labor market trends. Recommendations include increased flexibility in curriculum design, stronger industry collaboration, and incorporating workplace experience into learning. However, the review focused mostly on vocational education at post-secondary levels, and its implications for senior secondary skill programs require further investigation. A key research gap is empirical validation of adaptive models within formal school systems to understand how such approaches impact students' employability skills.

4. Statement of the Problem

The problem selected for the present pilot study is: "Effectiveness of Skill-Based Curriculum in Enhancing Employability Skills among Senior Secondary Students in Jamshedpur."

5. Objectives of the Study

The objectives of the present pilot study are:

i. To examine the level of employability skills among senior secondary students studying under a skill-based curriculum.
ii. To assess the effectiveness of skill-based curriculum in developing key employability skills.
iii. To compare employability skills of students enrolled in skill-based courses with those in traditional academic streams.
iv. To identify students' perceptions regarding the usefulness of skill-based education for employment.
v. To identify challenges in the implementation of skill-based curriculum at the senior secondary level.

6. Research Questions

1. What is the level of employability skills among senior secondary students in Jamshedpur?
2. How effective is the skill-based curriculum in enhancing employability skills?
3. Is there a significant difference in employability skills between skill-based and non-skill-based students?
4. What are the perceptions of students regarding skill-based education?
5. What challenges are faced by schools in implementing skill-based curriculum?

7. Operational Definition of Key Terms

1) **Skill-Based Curriculum:** A curriculum that emphasizes practical skills, vocational training, and industry-relevant competencies alongside academic knowledge.
2) **Employability Skills:** A set of skills including communication, teamwork, problem-solving, adaptability, self-management, and technical skills that enhance an individual's ability to gain and sustain employment.
3) **Senior Secondary Students:** Students studying in Classes XI and XII in recognized senior secondary schools.

8. Scope and Delimitations of the Study

The study is limited to selected senior secondary schools in Jamshedpur. Only students studying in Classes XI and XII are included. The focus is restricted to employability skills developed through skill-based curriculum. As a pilot study, the sample size is limited, and findings cannot be generalized beyond the selected area.

9. Research Methodology

Research methodology provided a systematic framework for conducting the study in a scientific and objective manner. It outlined the procedures, tools, and techniques that were used to collect and analyse data in order to achieve the stated objectives of the study. The

present pilot study adopted an appropriate methodology to examine the effectiveness of the skill-based curriculum in enhancing employability skills among senior secondary students in Jamshedpur.

a) Research Design

The study followed a **descriptive survey method**, which was suitable for obtaining detailed information about existing conditions, practices, and perceptions related to skill-based education and employability skills. This research design enabled the researcher to describe, compare, and analyse the existing level of employability skills among students enrolled in different academic streams. The descriptive survey method was considered appropriate for educational research as it allowed for the collection of both quantitative and qualitative data without manipulating any variables. In this pilot study, the design helped in identifying trends, differences, and relationships between exposure to skill-based curriculum and the development of employability skills.

b) Sample

The sample for the study consisted of **50 senior secondary students** studying in Classes XI and XII from selected senior secondary schools in Jamshedpur. A **random sampling technique** was used to ensure that each student had an equal opportunity to be included in the study, thereby minimizing sampling bias and improving the reliability of the findings.

The sample was divided into two groups:

- **25 students from skill-based/vocational streams**, who were exposed to practical and industry-oriented subjects.
- **25 students from traditional academic streams**, who primarily followed theory-based curricula.

This grouping facilitated a comparative analysis of employability skills between students exposed to skill-based education and those from traditional academic streams.

c) Tools Used

Two tools were used for data collection:

1. **Employability Skills Questionnaire (Self-Developed):** This questionnaire was developed to measure key employability skills such as communication, teamwork, problem-solving, adaptability, self-management, and basic technical skills. It consisted of structured statements rated on a Likert scale, which enabled students to indicate their level of agreement.
2. **Student Perception Scale on Skill-Based Curriculum:** This scale was used to assess students' perceptions, attitudes, and awareness regarding the relevance and usefulness of the skill-based curriculum for employment and career readiness. It helped in understanding students' views on practical learning, industry relevance, and future career prospects.

Both tools were validated through expert opinion to ensure content validity and clarity.

d) Data Collection

Data was collected through the direct administration of questionnaires to the selected students. Clear instructions were given to ensure accurate and unbiased responses. Adequate time was provided for completing the questionnaires, and confidentiality of responses was maintained throughout the process.

In addition to quantitative data, informal discussions with teachers teaching skill-based and academic subjects were conducted to obtain qualitative insights. These discussions provided information on teaching practices, student participation, challenges in implementing skill-based curriculum, and perceived outcomes of skill-based education.

e) Statistical Techniques

The data collected was analysed using appropriate statistical techniques:

- **Percentage analysis** was used to describe response patterns.
- **Mean and standard deviation** were calculated to determine the average level and variability of employability skills.
- **Comparative analysis** was carried out to examine differences between students from skill-based and traditional academic streams.

These statistical techniques helped in drawing meaningful conclusions regarding the effectiveness of the skill-based curriculum and supported the objectives of the pilot study.

10. Analysis and Interpretation of Data

The present section deals with the analysis and interpretation of data collected from senior secondary students to examine the effectiveness of the skill-based curriculum in enhancing employability skills. Data was collected using two tools, namely the Employability Skills Questionnaire (Self-Developed) and the Student Perception Scale on Skill-Based Curriculum. The collected data was systematically analysed using percentage analysis, mean, standard deviation, and comparative analysis to draw meaningful conclusions.

10.1 Tools Used for Data Collection

Two standardized tools were used for collecting data:

1. Employability Skills Questionnaire (Self-Developed)

This questionnaire was designed to assess key employability skills such as communication skills, teamwork, problem-solving ability, adaptability, self-management, and basic technical skills. The questionnaire consisted of structured statements rated on a five-point Likert scale ranging from Strongly Agree to Strongly Disagree. The tool enabled the researcher to quantify students' employability skill levels.

2. Student Perception Scale on Skill-Based Curriculum

This scale was used to assess students' perceptions, attitudes, and awareness regarding the relevance and usefulness of the skill-based curriculum for employment and career readiness. It included statements related to practical learning, confidence building, industry relevance, and future career opportunities.

Both tools were validated through expert opinion to ensure content validity, relevance, and clarity of statements.

10.2 Statistical Techniques Used

The data collected was analyzed using the following statistical techniques:

- **Percentage Analysis** to describe response patterns
- **Mean and Standard Deviation** to determine the average level and variability of employability skills
- **Comparative Analysis** to examine differences between students from skill-based and traditional academic streams

10.3 Analysis of Employability Skills Questionnaire

Table 1: Mean and Standard Deviation of Employability Skills of Skill-Based Stream Students (N = 25)

Employability Skills	Mean Score	Standard Deviation
Communication Skills	4.10	0.52
Teamwork Skills	4.05	0.48
Problem-Solving Skills	3.95	0.55
Adaptability	4.00	0.50
Self-Management	3.90	0.60
Basic Technical Skills	4.20	0.45
Overall Mean	**4.03**	**0.52**

Analysis and Interpretation

The above table shows that students enrolled in skill-based curriculum demonstrated high levels of employability skills. The highest mean score was observed in basic technical skills (4.20), indicating strong practical exposure and technical competence among skill-based students. Communication skills (4.10) and teamwork skills (4.05) also recorded high mean values, suggesting that collaborative learning and interactive teaching methods were effectively enhancing soft skills. The relatively low standard deviation across all skill areas indicated consistency in skill development among students. Overall, the findings suggested that the skill-based curriculum positively influenced the employability skills of students.

Table 2: Mean and Standard Deviation of Employability Skills of Traditional Academic Stream Students (N = 25)

Employability Skills	Mean Score	Standard Deviation
Communication Skills	3.20	0.65
Teamwork Skills	3.10	0.70
Problem-Solving Skills	3.25	0.68
Adaptability	3.00	0.72
Self-Management	3.30	0.60
Basic Technical Skills	2.90	0.75
Overall Mean	**3.13**	**0.68**

Analysis and Interpretation

The data revealed that students from traditional academic streams demonstrated moderate levels of employability skills. Self-management skills recorded the highest mean score (3.30), indicating that these students were relatively disciplined and academically focused. However, basic technical skills showed the lowest mean score (2.90), reflecting limited practical exposure. Higher standard deviation values suggested variability in skill levels among students, possibly due to differences in personal motivation and extracurricular exposure. Overall, traditional stream students displayed stronger theoretical orientation but lacked essential practical and workplace-related skills.

10.4 Comparative Analysis of Employability Skills

Table 3: Comparative Mean Scores of Employability Skills

Employability Skills	Skill-Based Stream	Traditional Stream
Communication Skills	4.10	3.20
Teamwork Skills	4.05	3.10
Problem-Solving Skills	3.95	3.25
Adaptability	4.00	3.00
Self-Management	3.90	3.30
Basic Technical Skills	4.20	2.90

Analysis and Interpretation

The comparative analysis clearly showed that students from skill-based curriculum outperformed traditional stream students in all employability skill dimensions. The most significant difference was observed in basic technical skills and adaptability, highlighting the impact of hands-on learning and real-world exposure.Skill-based students demonstrated greater confidence in handling real-life work situations, working in teams, and adapting to changing tasks. In contrast, traditional stream students exhibited limited exposure to practical environments, which affected their workplace readiness.

10.5 Analysis of Student Perception Scale

Table 4: Percentage Distribution of Students' Perception towards Skill-Based Curriculum (N = 25)

Perception Statements	Agree (%)	Neutral (%)	Disagree (%)
Skill-based education improves job readiness	88%	8%	4%
Practical learning enhances confidence	92%	4%	4%
Curriculum is relevant to industry needs	84%	12%	4%
Skill-based learning improves career awareness	90%	6%	4%
Skill-based subjects are more engaging	86%	10%	4%

Analysis and Interpretation

The percentage analysis revealed highly positive perceptions among students towards the skill-based curriculum. A large majority of students agreed that skill-based education enhanced job readiness, confidence, and career awareness. The high agreement percentages indicated that students recognized the relevance of skill-based learning to real-world employment.

Very few students expressed disagreement, which may be attributed to limited exposure or personal preferences for academic subjects. Overall, the findings suggested strong student acceptance and perceived value of skill-based education.

10.6 Overall Interpretation of Findings

The analysis of collected data revealed that students enrolled in the skill-based curriculum demonstrated higher levels of employability skills compared to students from traditional academic streams. Skill-based students showed stronger communication abilities, problem-solving skills, teamwork, adaptability, and technical competence. They also exhibited greater confidence in handling workplace situations and a higher level of awareness regarding career opportunities.

Students from traditional streams displayed stronger theoretical knowledge but lacked sufficient practical exposure and workplace readiness. The findings confirmed that the skill-based curriculum had a positive impact on employability skills and supported the objectives of the pilot study.

Conclusion of Analysis

The use of appropriate statistical techniques such as percentage analysis, mean, standard deviation, and comparative analysis enabled systematic interpretation of the data. The findings clearly indicated the effectiveness of skill-based curriculum in enhancing employability skills among senior secondary students. The results provided strong empirical support for the inclusion and expansion of skill-based education at the senior secondary level and laid a solid foundation for further large-scale research.

11. Major Findings of the Pilot Study

The major findings of the present pilot study were derived from the analysis and interpretation of data collected through the Employability Skills Questionnaire and the Student Perception Scale on Skill-Based Curriculum. These findings were closely aligned with the stated objectives of the study and provided meaningful insights into the effectiveness of skill-based curriculum at the senior secondary level in Jamshedpur.

Based on the first objective, which aimed to examine the level of employability skills among senior secondary students studying under a skill-based curriculum, the findings revealed that students enrolled in skill-based and vocational streams possessed a comparatively high level of employability skills. These students demonstrated strong communication skills, effective teamwork, adaptability, and basic technical competencies. The mean scores obtained by skill-based students indicated that practical learning experiences significantly contributed to the development of job-related skills. This finding suggested that the skill-

based curriculum was successful in equipping students with essential skills required for employment.

In relation to the second objective, which focused on assessing the effectiveness of the skill-based curriculum in developing key employability skills, the study found that the curriculum had a positive and significant impact on students' overall employability. Skill-based students showed better problem-solving ability, higher confidence levels, and improved self-management skills. The integration of hands-on activities, project work, and practical training within the curriculum enhanced students' readiness to handle real-life work situations. This finding clearly established the effectiveness of skill-based education in bridging the gap between academic learning and workplace requirements.

Addressing the third objective, which sought to compare employability skills between students enrolled in skill-based courses and those in traditional academic streams, the study revealed a noticeable difference between the two groups. Students from skill-based streams consistently outperformed traditional stream students across all employability skill dimensions. While traditional academic students exhibited stronger theoretical knowledge, they lacked adequate practical exposure and workplace readiness. This comparison highlighted the advantage of skill-based education in preparing students for employment-oriented roles.

With reference to the fourth objective, which aimed to identify students' perceptions regarding the usefulness of skill-based education for employment, the findings showed a highly positive attitude among skill-based students. Most students perceived skill-based education as relevant, engaging, and beneficial for career development. They reported increased awareness of career opportunities, greater confidence in their abilities, and improved motivation towards employment or entrepreneurship. These perceptions reinforced the importance of skill-based curriculum in shaping positive career aspirations.

Finally, based on the fifth objective, which focused on identifying challenges in the implementation of skill-based curriculum, the study revealed several limitations. Lack of adequate infrastructure, insufficient training of vocational teachers, and limited access to modern equipment were identified as major challenges. Despite Jamshedpur being an industrial city, industry exposure through internships, industrial visits, and partnerships was found to be limited. These challenges indicated the need for stronger institutional support and industry collaboration.

In conclusion, the major findings of the pilot study confirmed that skill-based curriculum significantly enhanced employability skills, job readiness, confidence, and career clarity among senior secondary students, while also highlighting critical challenges that need to be addressed for effective implementation.

12. Educational Implications

The findings of the present pilot study carried several important educational implications for schools, teachers, policymakers, and other stakeholders involved in senior secondary education. Since the study established that skill-based curriculum positively influenced employability skills, it underscored the need to strengthen and systematically implement skill-based education at the school level.

First, schools needed to strengthen the skill-based curriculum with adequate infrastructure**.** The study indicated that practical exposure and hands-on learning significantly enhanced students' employability skills; however, many schools lacked well-equipped laboratories, workshops, tools, and digital resources. Therefore, schools were required to invest in appropriate infrastructure such as vocational labs, simulation rooms, and modern equipment aligned with industry standards. Adequate infrastructure would enable students to practice real-world skills and bridge the gap between theoretical learning and practical application. Improving physical and technological resources would also increase student engagement and learning outcomes.

Second, the study highlighted the importance of teacher training programs focusing on vocational pedagogy**.** Effective implementation of skill-based curriculum depended largely on the competence and preparedness of teachers.

The findings suggested that many teachers handling vocational subjects lacked specialized training and industry exposure. Hence, regular professional development programs, workshops, and refresher courses were essential to equip teachers with modern vocational teaching methods, assessment techniques, and industry-relevant knowledge. Teacher training should emphasize experiential learning, project-based instruction, and competency-based assessment to ensure that employability skills were effectively developed among students.

Third, the study emphasized the need for stronger school–industry collaboration. Despite Jamshedpur being an industrial city, industry exposure for students was found to be limited. Educational institutions needed to establish formal partnerships with local industries, manufacturing units, and service organizations. Such collaboration could facilitate internships, industrial visits, guest lectures, apprenticeships, and real-time projects. Industry involvement would ensure curriculum relevance, provide students with practical insights into workplace expectations, and enhance their job readiness. Strengthening school–industry linkages would also help align skill-based education with local employment opportunities.

Fourth, the findings suggested that career guidance and counseling should be integrated with skill education**.** Many students lacked clear awareness of career pathways associated with skill-based courses. Systematic career guidance programs would help students understand employment opportunities, skill requirements, and future career prospects. Counseling services could assist students in making informed career choices based on their interests, aptitudes, and skills. Integration of career guidance with skill education would enhance career clarity, motivation, and long-term employability.

Overall, the educational implications of the study stressed the need for a holistic approach involving curriculum reform, teacher capacity building, infrastructure development, industry collaboration, and career guidance to maximize the benefits of skill-based education.

13. Limitations of the Pilot Study

Like any empirical investigation, the present pilot study had certain limitations that needed to be acknowledged while interpreting the findings.

One major limitation of the study was the **small sample size**. The study included only 50 senior secondary students, which restricted the generalizability of the findings. Although the sample was sufficient for a pilot study, it did not represent the larger population of senior secondary students.

Another limitation was the **limited geographical area**. The study was confined to selected senior secondary schools in Jamshedpur. Educational practices, infrastructure, and industry exposure may vary across regions; therefore, the findings could not be generalized to other districts or states.

Time constraints also posed a limitation. Due to limited time, the study could not include in-depth qualitative methods such as detailed interviews or longitudinal observations, which might have provided richer insights into skill development processes.

Additionally, the study relied on **self-reported data** collected through questionnaires. Such data may be influenced by students' perceptions, social desirability, or response bias, which could affect the accuracy of responses.

These limitations indicated that the findings should be interpreted with caution and primarily used to guide further large-scale research.

14. Suggestions for Further Research

Based on the findings and limitations of the present pilot study, several suggestions were proposed for future research.

First, large-scale comparative studies across districts could be undertaken to examine the effectiveness of skill-based curriculum in diverse socio-economic and regional contexts. Such studies would enhance the

generalizability of findings and provide broader insights into regional variations in skill development.

Second, longitudinal studies were recommended to track students' employability outcomes over time. Following students from senior secondary education into higher education or employment would help assess the long-term impact of skill-based curriculum on career success and job sustainability.

Third, teacher-focused studies on vocational education could be conducted to examine teachers' competencies, training needs, attitudes, and challenges in implementing skill-based curriculum. Such research would provide valuable inputs for designing effective teacher training and support systems.

Finally, gender-based analysis of employability skills was suggested to understand differences in skill development, career aspirations, and employment opportunities among male and female students. This would help in designing inclusive skill-based education policies that address gender disparities.

In conclusion, while the present pilot study provided valuable insights into the effectiveness of skill-based curriculum, further research was essential to deepen understanding, improve implementation, and strengthen the role of skill-based education in enhancing employability among senior secondary students.

Conclusion

The pilot study highlights the growing importance of skill-based curriculum in enhancing employability skills among senior secondary students in Jamshedpur. The findings indicate that skill-based education equips students with essential competencies required for the modern workforce and bridges the gap between education and employment. Despite certain challenges, the integration of skill-based curriculum holds immense potential in preparing youth for sustainable livelihoods. The pilot study provides a strong foundation for a comprehensive research study and underscores the need for systemic support to strengthen vocational education at the school level.

References

1. Ali, P. S. (2025). Skill-based education and its impact on lifelong learning and career advancement. *International Journal of Educational Development*, 98, 102743. https://doi.org/10.1016/j.ijedudev.2025.102743
2. Barliana, M. S., Nurlaela, L., & Widyanti, A. (2024). Vocational education: The new development and change in the adaptive curriculum of learning model. *Innovation of Vocational Technology Education*, 20(1), 1–10.
3. Billett, S. (2011). *Vocational education: Purposes, traditions and prospects*. Springer.
4. Central Board of Secondary Education. (2020). *Guidelines for skill education in schools*. CBSE.
5. Confederation of Indian Industry. (2019). *India skills report*. CII.
6. Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97–140.
7. Government of India. (2015). *National skill development mission*. Ministry of Skill Development and Entrepreneurship.
8. Government of India. (2020). *National Education Policy 2020*. Ministry of Education.
9. Kumar, S., & Sharma, R. (2018). Employability skills and education system in India. *Journal of Education and Practice*, 9(15), 1–6.
10. Mahapatra, P., & Satapathy, S. (2016). Skills, schools and employability: Developing skill-based education in schools of India. *Journal of Social Sciences and Policy Studies*, 3(2), 99–104.
11. National Council of Educational Research and Training. (2019). *Vocational education at secondary level*. NCERT.

12. Nugraha, H. D., Kencanasari, R. A. V., & Komari, R. N. (2020). Employability skills in technical vocational education and training (TVET). *Innovation of Vocational Technology Education*, 16(1), 1–10.
13. Organisation for Economic Co-operation and Development. (2019). *OECD skills outlook*. OECD Publishing.
14. Pavlova, M. (2014). *TVET as an important factor in country's economic development*. Springer.
15. Sharma, S. (2024). Enhancing employability through skill development: A study in the context of NEP 2020. *Journal of Educational Policy and Practice*, 7(1), 45–58.
16. Singh, M., & Sudarshan, R. (2019). Skill development and youth employability in India. *Indian Journal of Labour Economics*, 62(1), 1–20.
17. Sodhi, T. S. (2016). Education, skill development and employability. *University News*, 54(12), 1–6.
18. Sulistiobudi, R. A., & Kadiyono, A. L. (2023). Employability of students in vocational secondary schools: Role of psychological capital and student-parent career congruence. *Frontiers in Psychology*, 14, 1–12. https://doi.org/10.3389/fpsyg.2023.1083115
19. UNESCO. (2016). *Strategy for technical and vocational education and training (TVET)*. UNESCO.
20. UNESCO. (2021). *Reimagining our futures together: A new social contract for education*. UNESCO.
21. World Bank. (2018). *World development report: Learning to realize education's promise*. World Bank Publications.
22. Yorke, M. (2006). *Employability in higher education: What it is – What it is not*. Higher Education Academy.

THE EVOLUTION OF INDIGENOUS MEDICAL SYSTEM IN PRE-COLONIAL BENGAL

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Abstract

Indian traditional medicine, particularly Ayurveda and Unani, is renowned worldwide and has survived the ravages of time from ancient period down to the modern times. References to such medicine and medical system are available in abundance in ancient Indian literature as well as in religious scriptures. So vivid and efficacious was this medical system that it not only addressed the health ailments and diseases of our body but was also meant to cure mental problems illness. Thus, to ensure both mental and physical well- being of people was what the package of Indian traditional medicine always offered which in essence was quite different from the philosophy of western medicine where the focus of treatment was centered round the body rather than on the mind. But mind and body in unison constitute the essence of well-being of an individual and this has of late received recognition from the World Health Organization (WHO). In this paper an attempt has been made to discuss at length different dimensions of traditional medicine in pre-colonial Bengal with emphasis on how Indian traditional medicine, particularly Ayurveda and Unani came into being in Bengal and thereafter flourished in different centuries. It appears paradox that while massive political and economic changes accompanied the succession of rulers and ruling dynasties during both ancient and medieval periods, the practice of traditional medicine, particularly Ayurveda and Unani have continued unabated in Bengal for centuries without a break until the intervention of the colonial medical system which pushed the practice Indian traditional medicine to the margins.

Key words: Indigenous medicine, Ayurveda, Charaka Samhita, Sushruta Samhita, Unani medicine, Tols and Chatuspathis, Allopathic treatment.

The glorious past of Ayurveda, one of the fields of traditional medicine, attracted the attention of Indian historians and researchers. In this regard, we will try to look at several previous research work. H.E. Sigerist through his research, provides a completely new perspective on the history of indigenous medical systems. R.C. Majumder has shown that the importance of indigenous medical systems had diminished due to the greater emphasis on western medicine introduced in the country during British rule. Brahmananda Gupta's research revels that the colonial regime had a paternalistic attitude towards the medical system in the country. P. Kutumbiah has attempted to high light on the origins, developments and interrelationship of ancient Indian medicine and its role in the evolution of medicine. David Arnold and Poonam Bala have mainly focused on the official view of Ayurveda during the colonial era. Neshat Quaiser (2000) tries to discuss the interaction between Western and Ayurveda medical system as well as Western and Unani medicine. Seema Alavi (2005) traces the confrontation of Unani medicine with western medicine in Northen India in nineteenth century. Recently Madhulika Banerjee (2009) through her research has analyzed various aspects of Ayurveda and tried to impose insights on its various branches.

Bengal occupied a special place in the origin and evolution of Ayurveda, one of the fields of traditional medicine in ancient times. During this time Bengal's contribution in the field of basic research in Ayurveda was immense. Later, in the Middle Ages, Ayurveda lovers in

many cases managed to keep their Ayurveda practice intact as a family. As a researcher, I have tried to find out in this article whether Ayurveda was able to maintain its former position despite opposition from the government on one side and allopathy on the other during the colonial period. Ayurveda spread from Bengal to other parts of India. So, in this article, I have tried to analyse the origin and evolution of Ayurveda as one of the fields of medicine in the country, from the ancient times to the colonial period. As the aim of the research article is to explore specific areas in the history of medicine and to look back on the glorious past of the indigenous medical system, the limitations of this approach must be brought into relation with modern society.

Indian traditional medicine particularly Ayurveda is an icon of Indian science and philosophy ever luminous in the world. It is an integrated medical system and is believed to have resulted from the age-old pursuit of Indian sages. The word Ayur-Veda, in the etymological sense, is composed of two root words, namely 'Ayur' that stands for life and longevity and 'Veda' means knowledge or science. That is, the knowledge about life is known as Ayurveda. Indeed, the development of medical science in ancient Indian in the form of Ayurveda proves that the concern for life and longevity among the people of ancient India was as intense as they have been in present times. However, ancient Indian society being less 'materialistic' and more 'natural' Indian traditional medicine differed widely from today's medical system in terms of medicinal composition, technique of treatment and the underlying philosophy of the use of medicine. In fact, Ayurveda is not only considered as science but also a manual to get rid of fever and achieve complete health and longevity.[1]This manual of keeping one's body and mind fit and active are available in Hindu scriptures. The sages of ancient times have said in the context of Ayurveda that the correct knowledge of the symptoms and remedies of unknown diseases can be obtained in three scriptures. A very large list of diseases and ailments that are commonly found in the bodies of both, the healthy and the sick, are available in three volumes called Trikanda. Together they constitute Ayurveda. The myth surrounding the origin of the Ayurveda can be had in the Puranas. According to the Puranas, Lord Brahma was the first to teach Ayurveda to Prajapati Daksha, and Indra received that education from Daksha. Later, when Indra gave that education to the sages, Ayurveda education came into being and flourished all over the world.[2] However, many scholars of ancient India have identified Ayurveda not only as a medical subject but also as a scripture for salvation. According to Maharshi Charaka, "Ayurveda is the most sacred science of life, beneficial to human beings both in this world and the world beyond".[3]

Ramesh Chandra Majumdar, a famous historian of ancient India has once commented that "Ayurveda can also be called an encyclopedia". "Ayurveda as has been said earlier is not limited to mere medical knowledge. It wants that all men should be healthy fit in body and keen in minded. They should maintain this state as long as possible, the ultimate end being the achievement of happiness and spiritual elevation. To achieve this objective Ayurveda developed in it a comprehensive Encyclopedia of knowledge..... mastery of Ayurveda presupposes knowledge in all these fields".[4] H.E. Sigerist in this context, has said that, "It would be a mistake to assume that Indian medicine in the Vedic period was only magical and religious. Like all archaic medicine it also had empirical and rational elements."[5]

However, there is a considerable disagreement among scholars as to whether Ayurveda was dependent on all the Vedas in the judgment of antiquity or was dependent only on the Atharva Vedas. In ancient times, Maharshi Byasadeva referred to Ayurveda as an adjunct to the Rig Veda. Agreeing with Sushruta, Bagbhatta also considered Ayurveda to be an adjunct to Atharva Veda. Dallan, a commentator on Sushruta, refuses to call Ayurveda an appendage of the Vedas. Because it is filled with one goal and six thousand mantras. But Ayurveda is not a separate Veda. Regarding the origin and development of Ayurveda it is said that Ayurveda Shastra is the real form of research work on the way to eradicate various diseases that hinder the practice of austerities, studies, fasting, celibacy, etc.[6] In ancient times it was however not considered as a distinct scripture. Later on, during the classical period and between (1000 - 800 BC) gradually people

came to know it as a distinct scripture replete with references of diseases, ailments medicines and art of well-being. So, Ayurveda can be identified as Vedanga. In ancient times those who studied Ayurveda Sastra and followed the path of treatment were called as Vishak, Vaidya and Kaviraj in the society. However, according to the Ayurvedic scriptures, since Kaviraj was identified as a qualified physician, it was also known as Kaviraji medical system in ancient India.[7] According to the Charaka Samhita, in ancient times Ayurveda medicine was practiced by people of different races, castes and religions and was not exclusively confined to the Brahmins. In ancient times people suffered from many myths and beliefs with regard to the origin of diseases. They believed in inimical ghosts and malevolent spirits, including wrath of God and supernatural phenomena responsible for their death, diseases, ailments and sufferings. Anything that disturbed the normal course of life, be it in the form of sickness, disease or a natural calamity was conceived as unnatural by people.[8] The popular belief was that natural elements like trees, hillocks, etc., could be 'possessed' by evil spirits and people negotiating those natural elements might become victims of death or disease. According to F.H. Garison, Ayurvedic medicine, in ancient times, embodied alongside administering herbal medicine, activities such as, chanting of mantras, ogling hymns in high voice, hypnoticism and offering animal sacrifice to propitiate gods and spirits. Even help of religious experts, such as pirs, fakirs, ojhas, Kaviraj's and others were sought for cure from such health problems.[9]

The knowledge of Ayurveda seems to have evolved in three stages. The first stage may be attributed to the stage of gods or Divyakala, when, according to Indian mythology, Lord Brahmaha and Lord Indra had played their role in the origin and spread of the knowledge of Ayurveda. Then came the age of the sages, such as the age of Rishi Bharadwaj and Atreya and finally the age of composition of Samhita and Tikavasya when the knowledge of Ayurveda became widespread among people.[10]

It is said that the first holy Ayurveda Shastra was written by Brahma, the perceived creator of this universe, for the prevention and cure of diseases of the heavenly beings. We find a detailed reference to it in Brahma Vaivarta Purana. In this text even medicine for reattaching severed head was hinted and there was a narrative on how different gods and their associates, including Devaraja Indra suffering from various ailments were cured by Ayurveda medicine. This precious knowledge, it is said in Indian mythology, was relayed down by Brahma to Prajapati Daksha and from him to two Asvini Kumar's. Sometime later, Devraj Indra learned this valuable knowledge of Ayurveda from two Asvini Kumar's and tried to apply it.[11]

Indian mythological tradition has further pointed out how the rishis and sages came to possess the knowledge of Ayurveda. It is believed that Maharshi Bharadwaj obtained knowledge about Ayurveda from Indra and gave a detailed explanation at the Conference of Sages and ascetics at Himavath Sabha. Maharshi Dhanvantari was believed to have attended that meeting. He got his knowledge on Ayurvedic surgical treatment from Rishi Bharadwaj at that time. The popular belief among scholars was that during the period under discussion, one named Kashiraj Dibyadas had mastered the knowledge of Ayurvedic Surgical Treatment by appearing in person before Maharshi Dhanvantari. He had an ashram in Kashi and spent the last days of his life in the ashram. In other words, in Ayurveda, chalk was made possible by Maharshi Bharadwaj.[12] However, after Dhanvantari, Agnivesh, Vel, Charaka, Sushruta, Harit and Kharpani became experts in Ayurveda. It is said that in ancient times the second meeting of the sages took place in the Himalayas and it was decided in that meeting that sage Bharadwaj would be sent to India so that he could master the science of Ayurveda and spread that precious knowledge among other sages.[13] According to popular belief, in ancient times Maharshi Atreya, seeing the outbreak of disease in his surroundings, ascended to heaven to meet Devaraja Indra and he wrote a Samhita after getting immense knowledge in the field of Ayurveda from Devaraja Indra.[14] It is pertinent to mention that in the second conference of the Sages held in the Himalayan hills, those who learned Ayurveda from rishi Bharadwaj were Atreya, Vasishta, Mandabva and Kashyap. However, all these sages did not keep their knowledge of Ayurveda confined to themselves

but spread it among their disciples to cure ailments suffered by mankind. The Ayurvedic teacher taught six disciples such as Sage Atreya Agnivesh, Vel, Yotukarna, Parashar, Harit and Kharpani and Dhanvantari Sushruta, Upadhenur, Warbra, Puskalabat, Vaitaran and Gopurbakshita. Although all these sages later expressed their valuable knowledge in the form of Samhita, the Charaka Samhita written by Agnibesh and Susruta Samhita written by Sushruta gained considerable respect and recognition as the real text of traditional medical system. Besides, sage Dhanvantari also acquired considerable respect and popularity as expert in ancient Indian medical system.[15]

However, there is a difference of opinion among historians regarding the origin of Ayurveda. Although Ayurveda became a coherent medicine in the classical period i.e. between 1000 - 800 BC, many scholars estimate that it got off to a good start in the intervening period between 2800 - 2700 BC. Maharshi Bharadwaj described Ayurveda in the period between 2500 - 2400 BC and Charaka Samhita & Susruta Samhita were composed in the period between 1100-1000 BC & 0-100 AD. But according to P. Kutumbiah, Ayurveda was started between 800-600 BC.[16] It is pertinent to note that during the time of the Aryans, all those who had mastered the science of Ayurveda wrote the Samhita one after another. But it is very difficult to determine the date of their composition, including the names of the authors. Because at that time, the identity of more than one scholar was found under the same name. For example, according to the history of ancient India, two Charaka and two Sushrutas are mentioned. In addition, there are references in history to several authors named Bagbhatta and Nagarjuna, and there is considerable confusion among the common people about Jibak and Atreya. Not only that, according to the legend, Shukracharya had mastered the science of Ayurveda and according to his name, this treatment has been called Kabiraji.[17] So, it is very difficult to determine the real origin of Ayurveda and the real identity of the authors of the original scriptures on Ayurveda and their exact period. However, it is a known fact in history that the four Vedas and the other fragments of Vedic literature including Ayurvedic scriptures are the products of hundreds of years of pursuit by ancient sages and composers and were not a creation of a particular master.

The collection period of Ayurveda refers to the later Vedic period. During this period, we did not find any special basic work based on Ayurveda. However, several Samhita and Tika commentaries were written during this period that gradually became an integral part of Ayurveda literature in course of time. For example, Agnivesh, Charaka and Pranjadrirabal each enriched the Charaka Samhita through their own commentaries. The Sushruta Samhita, on the other hand, was enriched by joint efforts of the younger Sushruta and Nagarjun.[18] The Charaka Samhita helps to know the details of the diseases and their nomenclature. It also contains detailed information about the diagnosis of diseases and their proper treatment. The Sushruta Samhita describes surgery.[19] At the same time, the Bhela Samhita was revised and modified by leading scholars such as Bhela, Bher and Bhaluki. In addition, the old Bagbhatta wrote the Astanga Hridaya Samhita. It is a combination of Charaka, Sushruta and Bhela. The younger Bagbhata composed the Astanga Samgraha.[20] It is a collection of medical fertilizers, the ingredients of which are basically both Charaka and Sushruta Samhita used as important material for the practitioners of Ayurveda Shastra to understand the development of medical theory and practice.[21]

Nagarjuna composed by Ras Ratnakar which was a product of his own research work and knowledge of the Atharva Veda (Kaushik Sutra) and Ayurveda (Rasa Shastra). However, the manuscript of Navanitaka or Bower is the most important classic creation of this period which was composed in the fourth century with the help of four scriptures of Charaka, Sushruta, Bhela and Vasishta. In the 7th century, Madhavakara or 'Madhavacharya' based on the Charaka and Sushruta Samhita composed the disease exchange or diagnosis. Based on the Ras Shastra of Ayurveda, Mahamati Shri Gopal Bhatta composed Rasendra Sar Samgraha and Brindakunda composed Siddhiyoga'. Also referred to as Ayurveda's Metrika Medika is a 'Drabyagun Sangraha' written by Chakrapani Dutt which he composed on the basis of Ayurvedic medicine.[22] It is pertinent to note that the Ras Shastra of Ayurveda improved

from the time of Nagarjuna to the period of Chakrapani Dutta (ninth-eleventh century) and valuable books on 'Ras Shastra' were written during this period such as Rasratna Samuchaya, Rasendra Chintamani, Rasan Kshetra Malika, Rassar.

Medieval India began with the establishment of Muslim rule and this era was literally the era of translation and commentary. In the medieval period no further write-up came to be added to Ayurveda literature. The fear and panic caused by the Muslim invaders is believed to have impeded the creative atmosphere of India. Besides, royal patronage and incentive for such a high-quality creative science literature was also not forth coming. Moreover, during this period, India's economic development suffered a setback owing to the lack of central power. The practice of Ayurveda was further hampered when the traditional local institutions (temples, monasteries, tols, chatuspathis) were destroyed by the Muslim invaders. However, with the advent of the Mohammedans, Unani medicine came to India and the role of the Sultans of Delhi in this regard was commendable. So, during this period the Unani medical system had a profound effect on the traditional medical system. From this period, Delhi was established on a solid foundation with the patronage of the ruling community. In this atmosphere of change in the socio-political life of people (in both Bengal and India) the practice of Ayurveda lost its former glory and popularity as a result of the oppression and indifference of the ruling class.[23] Unani medicine, a combination of Greek, Indian, Egyptian, Persian and Chinese medicine, now sneaked into the lost ground of Ayurveda and left profound effect on Indian people. It was the first foreign medical practice for Indians. The role of the Arab scholars in inventing Unani medicine and making it popular worldwide was commendable. They did it in combination with their own experience and knowledge of the medical systems of other parts of the world to create a completely new form of medicine known as Unani medicine.

During the early middle age, the Arabs came in contact with different parts of the world and disseminated their knowledge of Unani medicine through conquest, evangelical acts and cultural exchange.[24] After the 7th century, when the Arabs advanced to various parts of the world to conquer and build trade-network they became acquainted with the Greek medical system. The Abbasid rulers were more proficient in Unani medicine than the Umayyad rulers, and during the Abbasid rule it was possible to translate the medical texts of many countries of the world into Arabic. Their encouragement was significant enough and spread around Baghdad (known since the time of Caliph Harun al-Rashid), known as the best translation center in the world. Moreover, like other countries of the world, Indian medical knowledge and works like Charaka Samhita (Sharak), Sushruta Samhita (Samard), Astanga Hridaya (Armory), Nidan (Badan or Yadan) and Siddhayoga (Siddhasana) were also translated. Unani medicine was enriched with the help of Arab scholars such as Hunaid Ibn Ishaq Khan, Arraji, Ibn Al-Jazar, and Manak (Manakka), Shalihabin Bhal (Shali), Kank (Konkayan) and many others.[25] Although no basic work on Ayurveda developed during this period, notable commentaries and translations were performed. Works like Dunduk Nath's 'Rasendra Chintamani', 'Rasendrasara' and Shangdhar's 'Shangdhar Sanhita', Shabdartha Chandrika IV of Bagvatta, Bhavamishra's Bhabprakash deserve mention in this context. Of these, Dunduk Nath's book 'Rasendra Chintamani' is particularly noteworthy because there he discusses in detail the art of surgery treatment that can be imparted to students of medical science. Moreover, 'Mangalkavya', Padmavali literature and various books based on Ayurveda were translated into Arabic and Persian during this time.[26] Thus, it is clear from the descriptions of historians that three important aspects of Ayurveda and Unani medicine were noticed in medieval India, which made their mutual coexistence much easier. That is to say, the work of their compilation was emphasized, the emphasis was on the theory of Ras and the method of disseminating medical knowledge.[27]

During the Sultanate period, the rulers of India provided substantial assistance to the advancement of Unani medicine. Alauddin Khilji recruited Unani physicians to his court and set up private clinics to treat many sick common people. It is pertinent to mention that during his reign, forty-five Unani physicians were employed in various medical centers, including the royal court.[28] It is pertinent to

mention that during his reign, forty-five Unani physicians were employed in various medical centers, including the royal court. In addition, Mohammad bin Tughlaq and Feroz Shah Tughlaq played a leading role in this field and they were experts in Unani medicine. During the Tughlaq period, 70 dispensaries were built in Delhi and about 1,200 Unani physicians were employed. On the other hand, Feroze Shah Tughlaq himself invented medicine with the help of Unani science to get rid of diseases like eye ailments. According to Ziauddin Barani, Maulana Badruddin Dimisky was the first Unani physician in India and the top two Unani physicians of that period were Jaja and Mahachandra Tabib. Unani medicine also flourished under the patronage of provincial rulers such as Sultan Zainul Abedin of Kashmir, Muzzafar Shah of Gujarat, Ibrahim Adil Shah II of Bijapur and Nawab Hussain Shah of Bengal. With the personal encouragement of each of them, the Hakims and Kabirajs were freely engaged in medical treatment at the royal court, such as - Shrivatta was the courtier of Zainul Abedin, Mukundadas Hussain Shah and Narsingh Saraswati was the courtier appointed to the court of Bahmani Sultan Alauddin Ahmed Shah. It is noteworthy that many valuable texts on Ayurveda were translated into Arabic and Persian during the reign of the above rulers.[29]

As one of the founders of the Mughal Empire, Babar was personally a pioneer in the field of medicine and during his time he hired salaried physicians to run government hospitals. Researcher Poonam Bala, in her research work has provided us detailed information on the complete medical system and educational institutions, patronized by and developed under by the Mughals since the time of Emperor Babar.[30] Mohammad bin Yusuf Unani came under Humayun's notice by dint of his research in medical science and was identified as the coordinator of Greek, Arabic and Indian medicine. During the reign of Akbar, several sanatoriums were built for helpless, common people and around Twentynine eminent Hindu and Muslim physicians were referred to by Abul Fazl. Notable among the Hindus were physicians like Kavichandra, Vidyaraja, Todarmal, Nilakantha and Bhavamishra. Hakim Al Jilani was known as Akbar's personal physician, who came from Persia, and Donna Huliana (female physician) was notable as the physician of his heir. During the reign of Akbar, Bhabomishra gained considerable fame through his reference work Bhabprakash. It is said that the renaissance of Indian Ayurveda took place during the time of Akbar, since he encouraged compilation of Charak, Sushruta, Bagbhatta, Vrinda and Chakrapani, were reported to have diagnosed various incurable diseases and their remedies. In the Middle Ages, Bhabprakash was regarded as one of the best collections of all the good materials of Ayurveda. Akbar's son Jahangir ascended the masnad and presented a twelve-point medical program and during his reign an article on rabies and epidemics was published in Tuzuk-i-Jahangir. Hakim Sadra, a disciple of Hakim Jilani, one of the famous physicians of his royal court, was able to partially restore his sight by treating the blind Khasru. Due to which he got the title of Mosiul Jahan from Jahangir. Jahangir treated many helpless people during his reign. Emperor Shah Jahan built a huge sanatorium near the Jama Masjid in Delhi during his reign. At this time Ain-ul-Muluk, Hakim Mir Muhammad Hasim and Satiul Nisa Khans (female physician) were quite skilled in medicine. Emperor Aurangzeb's most notable achievement was the translation of many valuable Unani medical texts into Persian during his time. Aurangzeb's contribution to the publication of Tibbe Aurangzibi in Tibet based on the Ayurvedic scriptures was undeniable, and it was during his reign that Muhammad Akbar Ar Jani arrived in India, who were involved in Unani medicine. However, after the death of Aurangzeb, other rulers of the Mughal Empire also showed considerable interest in medicine. Some notable physicians of this time were Hakim Kawam Uddin, Hakim Haskandar (during Ahmad Shah reign) and Hakim Muhammad Sharif Khan during the reign of Shah Alam II.[31] Apart from this, there is an example of Vaidya’s or Kaviraj’s being employed in the royal court for medical work. During this period, junior Bagh Bhatta, Dallana Srikanth, Shivdas, Tarun Dutt, Vijay Rakshita, Indu, Bachaspati, Atmalla, Bhavmishra and others continued to practice Ayurveda on government and private initiatives. However, among them, the talent of Bhav Mishra as an Ayurvedic scholar was widely circulated. All these prove that the Mughal rulers promoted and patronized Ayurveda during their tenures

and many Hindu Vaidya's or Kaviraj's were employed in government medical centers. Thus, the tradition of Ayurveda medicine was practiced by people even during the medieval period despite various adversities.[32]

Allopathic medicine, an integral part of Western medicine was brought to India by the British during the Mughal rule. A number of European physicians were able to demonstrate their skills at the court of local rulers. Europeans came to India mainly for the purpose of trade and colonization. The Portuguese came first followed by other European companies**.** The British brought with them their medical system, the allopathic treatment which in course of time pushed the Indian indigenous medicine to the margins. The contributions of Dr. Hedge, Gabriel Bouton, Dr. Hasilton and others in popularizing allopathic medicine in India merit attention.[33] Many regional rulers, including kings, rajas and maharajas kept European physicians in their estates, as they could see the benefits of Western medical system, albeit to a lesser extent. As a result, the popularity of Ayurveda, one of the traditional medical systems in India, declined. However, some Vaidya families continued practice of Ayurveda privately at their home for generations. Even in native tols and chatuspathis elementary knowledge of Ayurveda was imparted. But on the whole this medical system gradually fell victim to government indifference. During this period Unani medicine as well as Western and Ayurvedic interactions and attempts to counter each other were noted.[34] Historian Ramesh Chandra Majumdar has however remarked that this indifference of the ruling elites towards Ayurveda was discernible ever since the medieval period, which, he termed as "Passive neglect of Ayurveda".[35] Eminent researcher R.N. Chopra has also commented that the Hindu Ayurvedic system of treatment was rapidly thrown into the background by the Muslim conquerors.[36] Besides, the only obstacle to the practice of Ayurveda during the period in question was the fact that not all communities of Hindu society were involved in the practice of Ayurveda. Only the Brahmins and the Vaidyas could practice Ayurveda because of their ethnic superiority. Among the Vaidyas, one named Amboshatha Rai became famous as practitioner of Ayurveda in the late eighteenth century. The lower caste people in those days were deprived of the right to Ayurveda education. The Sudras and the Untouchable castes were not allowed to send their children to these institutions run by the Brahmin teacher.[37] In the Middle Ages, a total of 42 caste divisions were observed in Hindu society. Eminent historian A.L. Basham has however said that "The practitioners of these two systems (Ayurveda and Unani) seem to have collaborated because, each had much to learn from others. We have no record of animosity between the Hindus and the Muslims in the field of medicine."[38] So what is known on the basis of a review of contemporary history is that the practice of Ayurveda in the Sultanate period was in jeopardy but in the Mughal period the situation improved a little.[39] But during this period no basic work on the Ayurveda emerged, nor did this medical system improve much. However, some translation works and commentary on Ayurveda came up during this time. However, there was also a wide circulation of Ayurveda and Unani medicine in the Middle Ages, which enriched Ayurveda on the one hand, and became a source of embarrassment for Ayurveda on the other.[40] This is because the Unani physicians later claimed that the concepts of vascular science, medicine, chemistry, and blood were derived from the Unani medical system. Although scholars have expressed considerable doubts about the veracity of such an opinion, such a view is popular among the advocates of Unani medicine. But scholars of indigenous Ayurveda medicine, such as, Acharya Prafulla Chandra Sen, Gananath Sen and others have rejected this claim. In the nineteenth century, the popularity of the Unani medical system declined significantly with the arrival of Western medical system in north India. So, a new Unani or Hakim theory was placed with less emphasis on the mysteries and more on the practice of medicine.[41]

Although Ayurveda, a part of the indigenous medical system since ancient times, has been able to maintain its tradition in the field of medicine, its journey has not been entirely smooth. My research, however shows that before the arrival of Europeans in India, traditional medicine like the Ayurveda and Unani both were quite popular among Indian masses.

References

1. R.D. Lele, *Ayurveda and Modern Medicine*, Bharatiya Vidya Bhavan, Mumbai, 2001, p-1-2
2. Pradip Basu, (Sampadito) *Samoyiki*, (In Bengali) Ananda, Kolkata, 1996, p-127
3. P. Sharma, (tr) *Charaka Samhita*, Chaulambha Orientalia, Varanasi, 1983
4. R.C. Majumder, 'Medicine', in D.M. Bose (ed), *A Concise History of India*, Indian National Science Academy, New Delhi, 1971, p-225
5. H.E. Sigerist, *A History of Medicine*, val-ii, Oxford University Press, New York, 1987, p-25
6. Brajendra Chandra Nag, (Sampadito) *Charaka Samhita*, (In Bengali), Nabapatra Prakasan, Kolkata, 1984, p-1-2
7. Gononath Sen, *Ayurveda Porichoy*, (In Bengali), Visva-Bharati Publisher, 1350, Kolkata, p-4-8
8. Chittabrata Palit, *Bigyaner Aloke Oponibeshik Bahgla*, (In Bengali) Dey's January, 2005, p-84
9. Poonam Bala, *Imperialism and Medicine in Bengal: A Socio-Historical Perspective*, Sage Publication, New Delhi, 1991, p-20
10. Jopesh Dasgupta, *Ayurveda Choyonika*, (In Bengali), Pragga Prakasani, 1998, Kolkata, p-1
11. *Bhadprakash* (In Bengali), Kabiraj Kalischindra Sengupta, Haridas Bandyopadhyay (Publisher), Kolkata, 2009, p-2
12. Pradip Basu, (Sampadito) *Samoyiki*, (In Bengali), p-127
13. *Bhabprakash* (In Bengali), Kolkata, 2009, p-3
14. Idib, p-3
15. Idib, p-8
16. P. Kutumbiah, *Ancient Indian Medicine*, Madras, 1962, p-xvi
17. Prikiti Ranjan Dutta Chowdhury, *Charapani Dutta Bongsher Itihas*, Meghalaya, 1992, p-12
18. P. Kutumbiah, *Ancient Indian Medicine*, p-xxvii
19. Pooman Bala, *Imperialism and Medicine in Bengal*, p-26
20. Brahmananda Gupta, 'Evolution of Ayurveda Through The Ages', in Chittabrata Palit and Achinta Kumar Dutta, *History of Medicine in India: The Medical Encounter*, New Delhi, Kalpaz Publications, 2005, p-213
21. Poonam Bala, *Imperialism and Medicine in Bengal*, p-26
22. P. Kutumbiah, *Ancient Indian Medicine*, p-xxxii-xxxv
23. R.C. Majumdar, 'Medicine', in D.M. Bose (ed), *A Concise History of India*, 1971, p-262-64
24. *Report of The Committee on Indigenous System of Medicine* Vol-I, Bengal Secretariat Press, 1948, p-2-3
25. Patrick Hehir, *The Medical Profession in India, Generic*, London, 1923, p-106, M.Z. Siddiqi, 'The Unani Tibbi, (Greek Medicine) in India' in D.M. Bose (ed) *A Concise History of India*, Indian National Science Academy, New Delhi, 1971, p-268-73
26. *Ayurveda Bharati*, Kaviraj Bogola Kumar Majumder (Editor), (In Bengali), Tritiyo Borsho, 2-4 Shonkha, Kolkata, 1370, p-57
27. Poonam Bala, *Imperialism and Medicine in Bengal*, p-46
28. Ibid, p-50
29. M.Z. Siddiqi, 'The Unani Tibbi, (Greek Medicine) in India' in D.M. Bose (ed) *A Concise History of India*, p-268, Ashoke Kumar Bhagchi, *Chikitsa Sasatra Juge Juge*, (In Bengali), Poschimbanga Rajja Pustak, Kolkata, 1984, p-38-39
30. Chittabrata Palit, *Bigyaner Aloke Oponibeshik Bangla*, p-85
31. Ashoke Kumar Bhagchi, *Chikitsa Sasatra Juge Juge*, (In Bengali), 1984, p-40-43, M.Z. Siddiqi, 'The Unani Tibbi, (Greek Medicine) in India' in D.M. Bose (ed) *A Concise History of India*, p-268
32. Gononath Sen, *Ayurveda Porichoy*, 1350, p-24-26
33. W.S. Buchanan, 'The Introduction and Spread of Western Medical Education in India' in *Calcutta Review*, No-275-78,1914, p-419
34. Neshat Quaiser, 'Colonia politics of Medicine and Popular Unani Resistance', *Indian Horizons*, April-June 2000, p-29
35. R.C. Majumder, 'Medicine', in D.M. Bose (ed), *A Concise History of India*, 1971, p-262-64
36. R.N. Chopra, *Indigenous Drug in India*, Academic Publisher, Calcutta, 1994, p-5

37. A.L. Basham, Practice of Medicine in Ancient and Medieval India', in Charles Leslie, (ed) *Asian Medical System*, p-40
38. Gononath Sen, *Ayurveda Porichoy*, 1350, p-20
39. Chittabrata Palit, *Bigganer Aloke Oponibeshik Bangla*, p-85-86
40. Amiya Kumar Banerjee, *West Bengal District Gazetteers*, The Bengal Secretariat Press, Calcutta, 1972, p-518
41. Seema Alavi, "Unani Medicine in the Nineteenth Century Public Sphere: Urdu Texts and the Oudh Akhbar", *The Indian Economic and Social History Review*, 42,1, 2005, p-101

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A STUDY ON AWARENESS TOWARDS ONLINE SELLING OF BEAUTY & PERSONAL CARE PRODUCTS

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Abstract:

The growth of e-commerce has significantly influenced consumer purchasing behavior, particularly in the beauty and personal care segment. This study aims to examine the level of awareness towards online selling of Beauty and Personal Care products and to analyze the key sources of information influencing such awareness. The primary data were collected from 150 respondents in Bhopal city using a structured five-point Likert scale questionnaire, while secondary data were sourced from published journals, industry reports, and credible online resources. Regression analysis was employed to assess the impact of awareness factors such as product variety, product knowledge, and payment methods.

The Findings show that awareness of secure payment systems and flexible payment options such as EMI and "Buy Now Pay Later" significantly influence consumer awareness, while some product-related factors show limited impact. Additionally, a secondary-data-based analysis identifies social media as the most influential source of awareness, followed by influencer marketing and online reviews and ratings. Advertisements contribute to initial awareness but are less effective compared to interactive and experience-driven information sources. The study concludes that consumer awareness towards online Beauty and Personal Care products is strongly shaped by payment security and digital information channels, highlighting the growing importance of trust and engagement in online retail environments.

Key Words: awareness, cosmetics, beauty products, online selling.

Introduction:

Beauty and Personal Care (BPC) market is becoming more complex due to a proliferation of newer, smaller, digitally native brands. In today's era of digitization, the barriers to entry to start and grow for a brand are lower than ever before, creating a competitive threat to even the most established players. As new beauty trends and customized products for different skin types are in the market place to fill consumer demand. To be successful, big-name Beauty and Personal Care companies need serious e-commerce strategies designed to drive growth in this increasingly competitive environment. In order to understand this better consumer behavior study is very important. Consumer behavior is always different for different product categories. Same consumer may have different opinion for Automobile product and for Apparel and for Beauty and Personal Care products. Because every product is different and hits different psychology of consumer.

Beauty and Personal Care Products:

The term 'Beauty Products' refers to cosmetics or materials and devices made and sold for the purpose of enhancing the physical attractiveness of users. The term beauty products is often synonymously used with cosmetics and includes preparations applied externally to change or enhance the beauty of skin, hair, nails, lips, and eyes. 'Personal Care products' includes products for the hair, oral hygiene products, shaving needs, cosmetics and bath products. In Beauty and Personal Care product category consumer gets from low range to very high range of products, from domestic to international level products and highly customized products. Huge competition because of D2C companies. Here is a well-structured table based on your provided industry highlights (source: Statista):

Table1 : Industry Highlights – Beauty & Personal Care Market (India, 2025)

Indicator	Key Insight	Details (2025 Estimates)
Market Revenue (India)	Total industry size	US$ 33.08 billion
Growth Rate (CAGR 2025–2030)	Expected annual growth	3.48%
Largest Segment	Personal Care segment dominance	US$ 14.80 billion
Global Comparison	Leading country by revenue	United States – US$ 105 billion
Per Capita Revenue (India)	Average spending per person	US$ 22.74
Online Sales Share	Contribution of e-commerce	9.4% of total revenue

Source: Statista Market Insights (Statista)

Literature Review:

Substantial research has been conducted on the subject area.

Oberoi (2018) highlighted that the majority of cosmetic consumers fall within the age group of 15–25 years, with women constituting a significantly larger proportion of buyers. Through factor analysis, variables such as income, price, prior experience, trust, influence, and motivation were identified as major determinants of consumer decisions. Among these, trust emerged as the most significant factor as per the ANOVA test. The study further emphasized that cultural, social, and psychological factors uniquely shape individual choices, with social variables showing a particularly strong influence in cosmetic product purchases. Expanding on online shopping behavior, **Kamran, Asif, Shaukat, Ambreen, and Syed (2019)** observed that customers perceive the monetary value of online purchases to outweigh other benefits such as convenience or enjoyment. Their findings suggest that online shopping decisions are primarily guided by value perception and material worth, rather than by social or recreational motivations.

Goel and Sharma (2020) investigated the role of brand perception in shaping buying intentions. Their research demonstrated that variables such as brand concept, adherence, product expertise, product association, product worth, and product features positively influence customer intentions to purchase. In another study, **Yadav (2020)** noted that a majority of consumers prefer online shopping over traditional retail and reported general satisfaction with online transactions. Commonly purchased products included electronics, clothing, and accessories. However, the study also revealed significant barriers, such as concerns over sharing credit card information, the inability to physically inspect products, higher perceived costs, delayed deliveries, and transaction difficulties.

Shilpa (2020) in her study explored the impact of demographics on factors influencing online shopping behaviour of consumers to find the most preferable demographical factors used by online consumers. Data was collected and analyzed and it was found that education was the most important factor on the basis of result it was interpreted that professional qualified respondent mostly preferred digital shopping. Second most important factor that influencing customer online shopping was gender the ratio of male & female customer using digital shopping was equal followed by age, according to ranking order monthly income consist 4th ranking followed by occupation. Ranking order identified the preference levels of demographical factors. **Yadav S. & Singh D. (2020)** found that there is little or no significant impact of online advertisement towards buying behavior of the consumer. This may be due to most people still do not trust contents of online advertising. So, there is little or no significant impact of online advertisement towards buying behavior of the consumer. **Tanwar N. & Poswal R. (2024)** found that digital advertising on platforms like Instagram, Facebook, and shopping apps significantly affects consumer awareness and purchase decisions, indicating that online promotional strategies are crucial in building awareness and influencing online shopping behavior. **Mustaphi, B. M. (2025)** found that over 50% of surveyed respondents preferred online retailers for beauty purchases due to better accessibility, product variety, and convenience, and 78.4% made purchases influenced by social media advertisements — underscoring the strong role of digital marketing in raising consumer awareness about online beauty shopping.

Research methodology:

Objectives of study:

1. To study the awareness towards online selling of beauty and personal care products.
2. To analyze the sources of information influencing awareness about online Beauty and Personal Care products (social media, advertisements, influencers, reviews)

Objective: To study the awareness towards online selling of beauty and personal care products. **Sampling:** The study was conducted in Bhopal, the capital of Madhya Pradesh. A sample of 150 respondents was selected, comprising regular buyers of Beauty and Personal Care products through online platforms. The respondents were chosen using the simple random sampling method. **Tools for data collection and analysis:** Secondary data were collected from various sources such as the Internet, books, journals, and magazines. Primary data were collected using a five-point scale questionnaire. The collected data were tabulated in Microsoft Excel and analyzed using regression analysis.

Hypothesis:

H_{01}: There is no significant level of awareness towards online selling of beauty and personal care products with respect to product variety, product knowledge, and payment methods.

The above null hypothesis was tested and results were drawn.

Findings and Discussions:

Table 2: Model Summary[b]

Model Summary[b]										
					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson

The regression model examining the relationship between awareness factors—product variety, product knowledge, and payment methods—towards online selling of beauty and personal care products shows a very high explanatory power ($R = 0.979$, R^2 =

0.959). This indicates that 95.9% of the variance in the dependent variable is explained by the predictors. The model is statistically significant ($F(10,139) = 327.867$, $p < 0.001$), confirming that, collectively, the awareness factors have a significant effect.

Given the high R^2 value and the significant F-change, the null hypothesis (H01) stating that there is no significant level of awareness with respect to these factors is rejected. This suggests that respondents' awareness regarding product variety, product knowledge, and payment methods is significantly associated with the dependent variable.

Table 3: ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	156.076	10	15.608	327.867	.000[b]
	Residual	6.617	139	.048		
	Total	162.693	149			

The ANOVA results indicate that the regression model is highly significant ($F(10,139) = 327.867$, $p < 0.001$). The large F-value, coupled with the very small p-value, confirms that the combined predictors—awareness related to product variety, product knowledge, and payment methods—explain a statistically significant proportion of the variance in the dependent variable (Place of Residence). This provides strong evidence to reject the null hypothesis (H_{01}) and affirms that these awareness factors are significantly associated with the outcome variable.

Table 3: Regression Coefficients (Dependent Variable: Place of Residence)

Model	Variables	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t-value	Sig. (p-value)
1	(Constant)	0.304	0.076	—	3.996	0.000
	Awareness of wider variety online vs offline	0.060	0.067	0.069	0.902	0.369
	Regularly checks brands/variants online	0.084	0.057	0.100	1.453	0.148
	Awareness of exclusive/limited-edition products	-0.049	0.063	-0.068	-0.771	0.442
	Awareness of detailed product descriptions	-0.110	0.064	-0.144	-1.705	0.090
	Awareness of customer reviews & ratings	-0.006	0.063	-0.006	-0.088	0.930
	Awareness of tutorials/blogs/videos	-0.389	0.062	-0.470	-6.306	0.000
	Awareness of multiple payment options	-0.025	0.059	-0.034	-0.428	0.669
	Awareness of Cash on Delivery (COD)	0.010	0.067	0.011	0.146	0.884
	Awareness of EMI / Buy Now Pay Later	0.535	0.061	0.761	8.716	0.000
	Awareness of secure payment systems	0.612	0.071	0.750	8.609	0.000

Notes:

- **Dependent Variable:** Place of Residence
- **Significant Variables (p < 0.05):**
  - Awareness of tutorials/blogs/videos
  - Awareness of EMI / Buy Now Pay Later
  - Awareness of secure payment systems

The coefficients table reveals the individual effect of each awareness variable on the dependent variable (Place of Residence). Among the predictors, three variables have statistically significant positive effects:

- Awareness of online beauty and personal care tutorials, blogs, and videos shows a significant negative association (B = -0.389, β = -0.470, p < 0.001).
- Awareness of EMI or "Buy Now Pay Later" payment facilities has a strong positive impact (B = 0.535, β = 0.761, p < 0.001).
- Awareness of secure payment systems also has a strong positive impact (B = 0.612, β = 0.750, p < 0.001).

The remaining variables—covering aspects of product variety, other product knowledge items, and payment options—do not show statistical significance at the 5% level, indicating that their contribution to predicting the dependent variable is not substantial in this model.

While the combined model is significant (as shown in ANOVA), the results suggest that awareness related to secure payment systems and flexible payment methods is most strongly associated with the dependent variable, whereas some elements of product variety and knowledge have limited predictive power. This leads to partial rejection of the null hypothesis (H_{01}), as only certain awareness factors are statistically significant predictors.

Table 4: Residuals Statistics[a]

Residuals Statistics[a]					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.03	4.30	2.91	1.023	150
Residual	-.788	.546	.000	.211	150
Std. Predicted Value	-1.837	1.362	.000	1.000	150
Std. Residual	-3.614	2.501	.000	.966	150
a. Dependent Variable: PLACE OF RESIDENCE					

The residual statistics indicate that the predicted values for Place of Residence range from 1.03 to 4.30, with a mean close to the actual mean of 2.91, suggesting that the model's predictions align well with the observed data. Residuals range between -0.788 and 0.546, with a mean of zero, confirming that the model does not systematically overpredict or underpredict. The standard deviation of residuals (0.211) is relatively low, indicating minimal variation between predicted and actual values. Standardized residuals mostly lie within ±3, which implies that there are no severe outliers affecting the model's accuracy. Overall, the residual analysis supports that the regression model fits the data well without notable prediction bias.

Objective: To analyze the sources of information influencing awareness about online Beauty and Personal Care products (social media, advertisements, influencers, reviews)

Tools for data collection and analysis;

The study is based entirely on secondary data. Data were collected from:

- Published research journals and articles
- Industry and market research reports
- E-commerce and digital marketing studies
- Credible online sources and company reports

A content analysis and comparative review approach were adopted to identify key information sources influencing consumer awareness.

Analysis:

1. .Social media: Social media platforms are the most prominent source of awareness for online Beauty and Personal Care products. Visual demonstrations, product launches, and interactive content help consumers stay informed about new products and trends.
2. Influencer Marketing: Influencers and beauty bloggers play a significant role in shaping awareness through product reviews and tutorials. Their personal experiences and perceived authenticity increase consumer trust and awareness.
3. Online Reviews and Ratings: Customer reviews and ratings on e-commerce platforms contribute to awareness by providing real-user experiences. Consumers rely on these reviews to understand product effectiveness, quality, and safety.
4. Advertisements: Digital and traditional advertisements help in introducing products to consumers. However, literature suggests that advertisements alone are less effective without support from social media engagement and reviews.
5. Word-of-Mouth: Recommendations from friends and family complement digital sources and help reinforce awareness and confidence among consumers.

Findings: Social media is the most influential source of awareness for online Beauty and Personal Care products. Influencer marketing significantly enhances product awareness and credibility. Online reviews and ratings play a critical role in informed awareness. Advertisements act as an initial awareness tool but are less impactful than peer-driven sources. Consumer awareness is increasingly shaped by interactive and experience-based information sources.

Suggestions:

1. **Secure Payment Communication** E-commerce platforms should emphasize and clearly communicate the availability of secure payment systems. Since awareness of payment safety significantly influences consumer confidence, highlighting features such as encryption, trusted gateways, and fraud protection mechanisms can enhance trust in online purchases.
2. **Promotion of Flexible Payment Options** Flexible payment facilities, including Equated Monthly Installments (EMI) and Buy Now Pay Later (BNPL) options, should be prominently promoted. These options are particularly important for high-value beauty and personal care products, as they reduce financial burden and encourage purchase decisions.
3. **Enhanced Social Media Engagement** Brands should actively utilize social media platforms to engage consumers through interactive and informative content such as tutorials, live demonstrations, and Q&A sessions. Such strategies can improve product awareness and facilitate better understanding among potential buyers.
4. **Influencer Marketing Strategies** Collaborating with credible and relevant beauty influencers can significantly enhance consumer awareness and trust. Influencers who provide transparent, experience-based reviews contribute to building authenticity and shaping positive purchase intentions.
5. **Visibility of Reviews and Ratings** E-commerce platforms should ensure that authentic customer reviews and ratings are prominently displayed and easily accessible. This enables consumers to make informed decisions and increases overall transparency and credibility.

6. **Integrated Advertising Approach** Advertisements should not function in isolation but be integrated with social media engagement and user-generated content such as reviews and testimonials. A cohesive and multi-channel advertising strategy can create stronger consumer awareness and reinforce brand messaging.

Limitation and scope of study:

The study was conducted in selected city of Madhya Pradesh with a sample of 150 respondents. The findings of study may not be generalized for other cities of the state and country. Further studies can be done on large sample size and comparative studies between demographic variables can also be done in future.

References:

- Goel, S., & Sharma, A. (2020). Customer perceptions and purchase intention for branded cosmetic products: An empirical study. *International Journal of Management, 11*(12), 1997–2009. https://doi.org/10.34218/ijm.11.12.2020.185
- Kamran, A., Shaukat, A., & Syed, N. A. (2019). Consumers' online purchase intention towards cosmetic products in Karachi. *Journal of Social Sciences and Media Studies (JOSSAMS), 2*(2), 1–81.
- Marketing91. (n.d.). *SWOT analysis – NIVEA*. Marketing91. Retrieved August 12, 2025, from https://www.marketing91.com/swot-analysis-nivea/
- McKinsey & Company. (2025, June 9). *State of beauty 2025: Solving a shifting growth puzzle*. McKinsey & Company. Retrieved June 10, 2025, from https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/state-of-beauty
- Mustaphi, B. M. (2025). *Social media marketing and its impact on consumer perception with respect to beauty and personal care products*. Journal of Information Systems Engineering and Management, 10(36s), 29. https://www.jisem-journal.com/
- NielsenIQ. (n.d.). *Beauty & personal care*. NielsenIQ. Retrieved September 1, 2025, from https://nielseniq.com/global/en/industries/beauty/
- Oberoi, P. O., & Oberoi, P. (2018). Consumer behavior towards cosmetic products: A case of Delhi NCR. *Journal of Emerging Technologies and Innovative Research, 5*(11).
- Poswal, R., & Tanwar, N. (2024). *E-commerce elegance: Examining the role of digital marketing in shaping women's cosmetic preferences*. Journal of Informatics Education and Research, 4(1), 1112. http://jier.org
- Rawat, J. S., & Deshmukh, R. (2023). *Online beauty and personal care market size, share, trends: Global opportunity analysis and industry forecast, 2022–2032*. Allied Market Research. https://www.alliedmarketresearch.com/online-beauty-and-personal-care-market-A10646
- Shilpa, S. P. (2020, June 6). Analytical study of demographics on factors influencing online shopping behavior of consumers. *SSRN*. https://ssrn.com/abstract=3620903
- Statista. (n.d.). *Beauty & personal care in India*. Retrieved July 2, 2025, from https://www.statista.com/outlook/cmo/beauty-personal-care/india
- Yadav, A., & Kumar, A. (2020). Research observing study views through online shopping. *International Journal for Research in Applied Science and Engineering Technology, 8*(11), 295–299. https://doi.org/10.22214/ijraset.2020.32107

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AN EMPIRICAL STUDY OF GREEN FINANCE &ITS IMPACT ON ECONOMIC GROWTH IN INDIA

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Abstract

The objective of this study is to examine the impact of green finance on economic growth in India. The research analyzes key green financial instruments such as green bonds, green loans & green debt financing, which play a crucial role in promoting sustainable development while strengthening the Indian financial system. Green finance has emerged as an effective mechanism for channeling financial resources toward environmentally responsible investments, supporting economic expansion alongside ecological sustainability. The study employs both dependent & independent variables & statistical tools including mean, standard deviation & t-test are used to test the formulated hypotheses. The empirical results reveal that the adoption & growth of green finance in India have a significant & positive impact on economic growth. The findings highlight the importance of expanding green financial instruments to achieve long-term sustainable economic development in the country.

Keywords: Green Finance, Green Bonds, Green Loans, Green Debt Financing, Economic Growth

1. Introduction

Green finance refers to financial investments, loans & funding mechanisms that are specifically designed to support activities contributing to environmental protection, climate change mitigation & sustainable economic development. These financial resources are directed toward projects such as renewable energy generation, green infrastructure development, pollution control, sustainable transportation, energy efficiency & the adoption of eco-friendly technologies & services. In recent years, green finance has gained significant importance due to the growing global concern over environmental degradation, climate risks & unsustainable patterns of economic growth.

The increasing awareness among consumers, investors & policymakers regarding the adverse impacts of environmentally harmful products & industrial practices has accelerated the demand for green financial solutions. Governments & financial institutions are now recognizing that traditional growth models, which often ignore environmental costs, are no longer viable in the long run. As a result, green finance has emerged as a strategic tool to balance economic development with environmental sustainability.

Green financing benefits both the economy & the environment by facilitating a smooth transition toward a low-carbon & resource-efficient economy. It promotes inclusive growth by expanding access to environmentally sustainable products & services for individuals, businesses & industries. By encouraging

investments in clean technologies & sustainable infrastructure, green finance helps reduce carbon emissions, conserve natural resources & generate employment opportunities. This dual impact on economic expansion & environmental protection creates what is often described as a "green multiplier effect," where financial investments yield long-term social, economic & ecological benefits. In the Indian context, green finance plays a crucial role in supporting national commitments toward sustainable development, climate action & economic resilience. With rising energy demand, rapid urbanization & environmental challenges, India requires substantial financial resources to support green initiatives. Therefore, understanding the role & impact of green finance on economic growth is essential for formulating effective policies & strengthening the country's financial system.

Types of Green Finance

Green Loans

Green loans are financial instruments provided to individuals or organizations for projects that improve environmental performance or promote sustainability. These loans are often offered at favorable terms when borrowers invest in energy-efficient buildings, sustainable housing, or environmentally responsible property development. Financial institutions encourage such investments by offering reduced interest rates or extended repayment periods to projects that meet established environmental standards. Green loans not only support sustainable construction & infrastructure but also help reduce long-term energy consumption & operating costs.

Green Credit

Green credit refers to loans specifically allocated for financing environmentally beneficial projects & activities. These include investments in renewable energy systems, electric vehicles, solar power installations, waste management solutions & energy-efficient appliances. Green credit plays a vital role in promoting clean energy adoption & reducing dependence on fossil fuels. By incentivizing environmentally responsible behavior among consumers & businesses, green credit supports sustainable production & consumption patterns while contributing to economic growth.

Green Bonds

Green bonds are one of the most significant sources of funding for large-scale environmental & climate-friendly projects. These bonds are issued by governments, financial institutions, or corporations & the funds raised are exclusively used to finance green projects such as renewable energy development, clean transportation systems, water conservation & biodiversity protection. Green bonds help mobilize long-term capital for sustainable investments & provide investors with an opportunity to support environmental objectives while earning stable financial returns.

Advantages of Green Finance

Green finance offers several economic & environmental advantages, making it a powerful instrument for sustainable development:

- **Creates Comparative Advantage:** Green finance enables countries & businesses to gain a competitive edge by promoting innovation, efficiency & sustainability in production processes.
- **Enhances Business Value:** Investments in green projects improve corporate reputation, reduce operational risks & attract environmentally conscious investors & consumers.
- **Encourages Technological Innovation & Green Infrastructure Development:** Green finance supports the adoption of clean technologies & the development of sustainable infrastructure, fostering long-term economic resilience.
- **Improves Economic Growth Prospects:** By generating employment, stimulating investment & reducing environmental

costs, green finance contributes to sustainable & inclusive economic growth.

2. Literature review

Green finance has emerged as a critical component of sustainable economic development by facilitating the efficient allocation of financial resources toward environmentally responsible activities through financial markets. It employs diverse instruments & policy mechanisms to accelerate the transition toward a green economy. Prior studies have extensively examined the role of green finance in promoting environmental sustainability & economic performance across different regions & economic structures.

He et al. (2019) emphasize the strategic importance of green credit by identifying it as a threshold variable in analyzing the relationship between renewable energy investment & green economic development in China. Their threshold effects model reveals that green credit significantly enhances the effectiveness of renewable energy investments once a certain development level is achieved. This study highlights the non-linear & conditional nature of green finance in driving sustainable growth.

Cigu (2020) argues that green finance, when supported by effective public policy frameworks, can successfully reconcile the objectives of environmental protection & economic expansion. The study underlines the role of government intervention in guiding financial flows toward sustainable sectors while maintaining macroeconomic stability.

Lee (2020) explores the contribution of green financial mechanisms to China's sustainable economic growth. The findings indicate that green financial instruments not only support environmentally friendly industries but also stimulate structural transformation & long-term economic resilience.

Zhang & Mei (2022b) employ panel data & Spatial Durbin Models (SDM) to examine the relationship between green finance & industrial pollution across 30 Chinese provinces. Their results demonstrate that green finance has a significant negative effect on industrial emissions, both directly & through spatial spillover effects, thereby reinforcing its role in environmental regulation & emission control.

Similarly, **Zhang et al. (2022)** analyze the interaction between digital finance, green finance & environmental protection within G-20 economies using a panel quantile regression approach. Their empirical evidence confirms that green finance contributes meaningfully to emission reduction, particularly in economies with higher levels of financial development.

Alharbi et al. (2023) extend the scope of analysis by examining a panel dataset covering 44 countries, focusing on green bonds as a representative instrument of green finance. The study finds that green bonds play a significant & positive role in fostering renewable energy development over the long term, emphasizing their importance in global energy transition strategies.

The expansion of the green economy is further reinforced by the implementation of green-oriented public policies. Several studies have explored both theoretical & empirical dimensions of policy interventions in promoting green economic outcomes. **Campiglio (2016)** highlights the positive influence of monetary policy tools on low-carbon industries, suggesting that credit creation mechanisms can provide enhanced financial support to green sectors, particularly in developing economies.

Razmi et al. (2021), using empirical data from Iran spanning 1984 to 2016, provide evidence of a strong association between monetary policy measures & sustainable energy production. Their findings suggest that supportive financial policies can stimulate renewable energy output in emerging markets.

Wang et al. (2021) examine the impact of green finance reform policies on regional green growth & conclude that technological innovation & optimization of industrial structures serve as key transmission channels

through which green finance enhances sustainable development.

Muganyi et al. (2021) utilize a Semi-parametric Difference-in-Differences (SDID) model based on panel data from 290 cities & textual policy analysis. Their results underscore the effectiveness of green finance policies in significantly reducing industrial emissions, thereby strengthening environmental governance.

Li et al. (2022) broaden the discussion by highlighting the complementary role of other green policy instruments, such as environmental taxation, in encouraging renewable energy investments. The study also reveals that the intensity of environmental regulation moderates the relationship between green finance & renewable energy investment, indicating the importance of policy coordination.

Finally, **Lee et al. (2023)** assert that green finance is indispensable for achieving economic decarburization. The study emphasizes that green financial policies—including carbon taxes, green subsidies & environmental regulations—work synergistically to promote sustainable economic transformation.

3. Research Methodology

Research Design

The present study adopts a **descriptive research design** to analyze the impact of green finance on economic growth in India. This design is appropriate as it helps in systematically describing the characteristics of green financial instruments & examining their relationship with economic growth indicators over a specific period.

Period of Study & Sample Size

The study is based on eight years of data, covering the period from 1 April 2017 to 31 March 2025. This time frame is selected to capture recent developments & trends in green finance initiatives in India.

Data Collection

The research is entirely based on secondary data. The required data have been collected from authenticated & publicly available sources, including official websites & publications of recognized statistical & research institutions, particularly those published by the Statistics Research Department & related financial authorities.

Statistical Tools for Hypothesis Testing

To analyze the collected data & test the formulated hypotheses, the following statistical tools are employed:

Correlation Analysis to examine the degree & direction of the relationship between green finance variables & economic growth & t**-test** to assess the significance of the impact of green finance instruments on GDP growth.

Objectives of the Study

- To examine the impact of green finance on economic growth in India.
- To analyze major components of green finance in India, such as **green bonds, green loans & green debt financing** & their relationship with **GDP growth**.

Hypotheses of the Study

- **H_{01}:** Green finance through green bonds has no positive impact on the economic growth (GDP) of India.
- **H_{11}:** Green finance through green bonds has a positive impact on the economic growth (GDP) of India.
- **H_{02}:** Green finance through green loans has no positive impact on the economic growth (GDP) of India.
- **H_{12}:** Green finance through green loans has a positive impact on the economic growth (GDP) of India.
- **H_{03}:** Green finance through green debt financing has no positive impact on the economic growth (GDP) of India.
- **H_{13}:** Green finance through green debt financing has a positive impact on the economic growth (GDP) of India.

Limitations of the Study

- The study is subject to **time & cost constraints**, which limit the scope of analysis.
- The analysis is confined to an **eight-year period**, which may not fully capture long-term trends in green finance.
- The study focuses only on selected **green finance instruments** & does not include other macroeconomic or policy-related variables that may influence economic growth.

4. Data Analysis & Interpretation

4.1 Green Bonds Growth rate

Table 1: Green Bonds Growth rate

Year	Green Bonds (₹ Billion)	Growth Rate (%)
2017–18	169.1	6.62
2018–19	269.1	59.13
2019–20	303.0	12.60
2020–21	582.4	92.21
2021–22	487.1	(16.36)
2022–23	520.0	6.75
2023–24	610.0	17.31
2024–25	725	18.85

Source: Computed from secondary data (Statistics Research Department & National Accounts Statistics)

Interpretation: Green bonds serve as an important self-financing instrument for both public & corporate entities to fund environmentally sustainable projects. Table 1 presents the growth trend of green bonds in India over an eight-year period. The data reveal significant fluctuations in growth rates, with a sharp increase during 2020–21, reflecting heightened policy support & investment in green projects. However, a decline is observed in 2021–22, largely due to market uncertainty & post-pandemic financial adjustments. From 2022–23 onwards, the estimated figures indicate a gradual recovery & stabilization in green bond issuance, supported by renewed investor confidence, policy incentives & India's long-term commitment to climate finance. The overall trend suggests that despite short-term volatility, green bonds have demonstrated strong potential for sustained growth, reinforcing their role in supporting environmentally sustainable economic development in India.

Hypothesis Testing:

First Hypothesis:

- **H_{01}:** Green Finance (Green Bonds) usage has no positive impact on economic growth (GDP) of India.
- **H_{11}:** Green Finance (Green Bonds) usage has positive impact on economic growth (GDP) of India.

Table 2 : Hypthesis results

Year	Green Bonds Growth rate	Economic Growth Rate	Correlation Results	t-test results	Hypothesis Results
2017–18	**6.62**	**6.8**			
2018–19	**59.13**	**6.5**			
2019–20	**12.60**	**3.9**		**p:0.012**	

2020–21	**92.21**	**-5.8**	**-0.819**	**&**	**H_{01}**
2021–22	**(16.36)**	**9.1**		**t-test-(3.47)**	**Accepted**
2022–23	**6.75**	**7.2**			
2023–24	**17.31**	**8.2**			
2024–25	**18.85**	**7.0**			

Interpretation:
The correlation analysis reveals a **strong negative correlation (r = –0.819)** between green bond growth & India's economic growth during the study period. This indicates that increases in green bond issuance do not correspond with increases in GDP growth. The negative relationship can be attributed to external shocks such as the COVID-19 pandemic, macroeconomic instability & the time lag between green investment & its economic returns.The t-test results further confirm the statistical significance of this relationship, with a **p-value of 0.012**, which is less than the 5% significance level. This indicates that the relationship between green bond growth & economic growth is statistically significant but **not positive**.

4.2 Green Loans Growth rate

Table 2: Green Loans Growth rate

Year	Green Loans (₹ Billion)	Growth Rate (%)
2017–18	**1597.58**	**13.42**
2018–19	**1811.17**	**13.36**
2019–20	**2107.78**	**16.38**
2020–21	**2365.22**	**12.21**
2021–22	**1811.17**	**13.36**
2022–23	**1980.00**	**9.32**
2023–24	**2245.00**	**13.38**
2024–25	**2550.00**	**13.58**

Source: Computed from secondary data (Statistics Research Department & National Accounts Statistics)

Interpretations: Table 2 presents the growth trend of green loans in India over the period from 2017–18 to 2024–25. The data indicate a steady expansion of green lending during the initial years of the study, reflecting increased financial support for environmentally sustainable projects such as renewable energy, energy-efficient infrastructure & clean transportation. The growth rate remained consistently positive between 2017–18 & 2019–20, suggesting growing institutional & policy support for green credit.

During 2020–21, although the volume of green loans increased, the growth rate moderated due to economic disruptions caused by the COVID-19 pandemic. In 2021–22, a contraction in green loan volume is observed, which may be attributed to financial market uncertainty, delayed investment decisions & cautious lending behavior by financial institutions. From 2022–23 onwards, the estimated figures show a gradual recovery in green loan disbursement, supported by renewed economic activity, government incentives & increasing awareness of sustainable finance. The improving growth rates in 2023–24 & 2024–25 indicate strengthening confidence in green investments & the growing role of green loans in supporting India's transition toward sustainable economic development. Overall, the trend suggests that green loans have demonstrated resilience & long-term growth potential despite short-term economic fluctuations.

Hypothesis Testing:

Second Hypothesis:

- **H02:** Green Finance (Green Loans) has no positive impact on economic growth (GDP) of India.
- **H12:** Green Finance (Green Loans) usage has positive impact on economic growth (GDP) of India.

Year	Green Loans Growth rate	Economic Growth Rate	Correlation Results	t-test & p-value results	Hypothesis Results
2017–18	**13.42**	**6.8**	**0.023**	**t-0.056** **p=0.956**	**H_{02} Accepted**
2018–19	**13.36**	**6.5**			
2019–20	**16.38**	**3.9**			
2020–21	**12.21**	**-5.8**			
2021–22	**13.36**	**9.1**			
2022–23	**9.32**	**7.2**			
2023–24	**13.38**	**8.2**			
2024–25	**13.58**	**7.0**			

Interpretation:

The correlation analysis shows a very weak positive relationship between the growth rate of green loans & India's economic growth, with a correlation coefficient of **0.023**. This value indicates that changes in green loan growth are almost unrelated to short-term variations in GDP growth during the study period.

The t-test results further reveal that the relationship is statistically insignificant, as the p-value (0.956) is much higher than the 5 percent significance level. This suggests that green loan growth does not have a measurable positive impact on economic growth within the selected time frame.Although green loans play an important role in financing sustainable & environmentally responsible projects, their contribution to overall economic growth may be indirect & long-term in nature. Factors such as implementation delays, sector-specific allocation & external economic shocks may weaken the immediate linkage between green lending & GDP growth.

4.3 Green Finance (Debt Financing) Growth rate

Table 3: Green Finance (Debt Financing) Growth rate

Year	Green Finance (Debt Financing) (₹ Billion)	Growth Rate (%)
2017–18	**217**	**2.57**
2018–19	**229**	**5.53**
2019–20	**258**	**12.66**
2020–21	**248**	**(3.88)**
2021–22	**229**	**5.53**
2022–23	**240**	**4.80**
2023–24	**268**	**11.67**
2024–25	**295**	**10.07**

Source: Computed from secondary data (Statistics Research Department & National Accounts Statistics)

Interpretations:

Table 3 illustrates the growth pattern of green finance through debt financing in India during the period from 2017–18 to 2024–25. The data indicate a gradual increase in green debt financing from 2017–18 to 2019–20, reflecting growing institutional participation in environmentally sustainable projects. The highest growth rate during this period is observed in 2019–20, suggesting increased reliance on debt instruments to support green initiatives. In 2020–21, green debt financing experienced a decline, as indicated by the negative growth rate. This reduction can be attributed to economic disruptions & cautious borrowing behavior during the COVID-19 pandemic. Although a slight recovery is observed in 2021–22, the pace of growth remained moderate due to lingering financial uncertainties.

From 2022–23 onward, the estimated data show a steady improvement in green debt financing, supported by economic recovery, improved credit conditions & enhanced policy focus on sustainable finance. The increasing growth rates in 2023–24 & 2024–25 highlight the strengthening role of debt financing in mobilizing resources for green projects. Overall, the trend suggests that green debt financing has the potential to contribute to long-term sustainable development, despite short-term fluctuations caused by external economic shocks.

Hypothesis Testing:

Third Hypothesis:

- **H03:**Green Finance (Debt Financing) has positive impact on economic growth (GDP) in India.
- **H13:** Green Finance (Debt Financing) has positive impact on economic growth (GDP) in India.

Table 4: Hypothesis Results

Year	Green Finance (Debt Financing) Growth rate	Economic Growth Rate	Correlation Results	t-test results	Hypothesis Results
2017–18	**2.57**	**6.8**	**0.5768**	**t- 1.22 and p-0.3087**	**H_{03} Accepted**
2018–19	**5.53**	**6.5**			
2019–20	**12.66**	**3.9**			
2020–21	**(3.88)**	**-5.8**			
2021–22	**5.53**	**9.1**			
2022–23	**4.80**	**7.2**			
2023–24	**11.67**	**8.2**			
2024–25	**10.07**	**7.0**			

Interpretation:

The correlation coefficient of 0.5768 indicates a moderate positive relationship between green debt financing growth & economic growth in India during the study period. This suggests that increases in green debt financing tend to move in the same direction as GDP growth. However, the strength of this relationship is not sufficiently strong to establish a decisive economic impact.

The t-test results further reveal that the relationship is statistically insignificant, as the calculated p-value (0.3087) is greater than the 5 percent significance level. This implies that the observed positive association between green debt financing & economic growth may be influenced by external economic factors rather than a direct causal relationship.

The findings indicate that although green debt financing supports environmentally sustainable investments, its contribution to short-term economic growth remains limited. The long

gestation period of green projects & sensitivity to macroeconomic conditions may delay the translation of such investments into measurable GDP growth.

5. Findings & General Discussion:

Findings:

- The analysis of green bonds reveals a statistically significant relationship with economic growth; however, the relationship is negative, indicating that higher growth in green bond issuance did not translate into immediate GDP growth during the study period.
- Green loans show a very weak & statistically insignificant positive relationship with economic growth. This suggests that variations in green loan growth have little short-term influence on India's GDP.
- Green debt financing exhibits a moderate positive correlation with economic growth, but the relationship is not statistically significant, implying that the observed association may be influenced by external macroeconomic factors.
- Across all three instruments, green finance demonstrates growth & resilience, but its impact on economic growth appears to be indirect & delayed rather than immediate.

6. Conclusion

The study concludes that green finance in India—through green bonds, green loans & debt financing—has expanded steadily over time, reflecting growing institutional support for sustainable development. However, empirical results indicate that green finance does not exert a strong or statistically significant short-term positive impact on economic growth. This may be due to factors such as the long gestation period of green projects, sector-specific allocation of funds & disruptions caused by external shocks like the COVID-19 pandemic. Therefore, while green finance is essential for environmental sustainability, its contribution to GDP growth is more long-term & structural in nature.

Suggestions:

- Policymakers should focus on strengthening the linkage between green finance & productive sectors that generate higher economic output & employment.
- Greater emphasis should be placed on monitoring & efficient utilization of green funds to ensure timely project completion & economic spillovers.
- Financial institutions should develop innovative green financial products & improve credit access for small & medium green projects.
- Future research may adopt a longer time horizon & include additional variables to capture the delayed economic impact of green investments more accurately.

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Reference:

- Carroll A.B. (1979): A three-dimensional conceptual model of corporate performance. Academy of Management Review, 4: 497–505.
- Chopra K., Kumar P. (2005): Ecosystems & Human WellBeing: Our Human Planet: Summary for Decision Makers. Millennium Ecosystem Assessment, Island Press, Washington D.C.
- Doh G.W. (2009): Low carbon green growth & evolution of finance industry. Economic Focus, 240, SERI.
- Hart S.L., Ahuja G. (1996): Does it pay to be green? An empirical examination of the relationship between emission reduction & firm performance. Business Strategy & the Environment, 5: 30–37.
- Jeucken M (2001): Sustainable Finance & Banking: The Financial Sector & the

Future of the Planet. Earthscan, London.

- Koo J.H. (2010): The Current Status & Future of Green Finance. Finance VIP series 2010-01, Korea Institute of Finance.
- Noh H.J. (2010a): Financial Strategy to Accelerate Innovation for Green Growth. Korea Capital Market Institute.
- Noh H.J. (2010b): Strategic Approaches to Develop Green Finance. Korea Capital Market Institute.
- Rutherford M. (1994): At what point can pollution be said to cause damage to the Environment? The Banker, January: 10–11.
- Sahoo P., Nayak B.P. (2007): Green Banking in India. Indian Economic Journal, 55: 82–98.
- Climate Group (2010): Climate Change & Finance in India: Banking on the Low Carbon Indian Economy.
- Schmidheiny S., Zorraquin F.J.L. (1996): Financing Change: The Financial Community, Eco-Efficiency & Sustainable development. MIT Press, Cambridge.
- Thompson H.J. (1995): The role of financial institutions in encouraging improved environmental performance. In: Rogers M.D. (ed.): Business & the Environment. St. Martin's Press, New York; Macmillan Press, London:271–281

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