

Sustainable Development in the Era of Artificial Intelligence

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Preface

In 2015, the United Nations set forth an ambitious global agenda with the adoption of the Sustainable Development Goals (SDGs)—a framework of 17 interconnected goals aimed at ending poverty, protecting the planet, and ensuring prosperity for all by 2030. These goals present a vision for a future where social, economic and environmental sustainability are in harmony, serving as a universal call to action for governments, institutions, businesses, and individuals. However, as the world moves towards 2030, achieving the SDGs has proven to be an immense challenge. Persistent inequalities, environmental degradation, and global crises such as climate change continue to threaten progress. In this context, the role of emerging technologies, especially artificial intelligence (AI), has gained attention as a potential driver of innovative solutions to some of the world's most pressing issues.

This book, “*Sustainable Development in the Era of Artificial Intelligence*”, seeks to explore the intersection between the SDGs and AI. While artificial intelligence is often discussed in terms of its potential to revolutionize industries, this book focuses primarily on its capacity to support sustainable development goals across a broad spectrum of sectors. From combating poverty and hunger to advancing education and promoting responsible consumption, AI offers novel approaches to addressing the complexity of today's challenges. Each chapter in this book delves into a specific SDG, examining how AI tools and systems can contribute to its fulfilment. At its core, this book is an invitation to consider how AI can be harnessed responsibly and inclusively to accelerate progress towards the SDGs. It encourages readers to think critically about the synergies between technology and sustainable development, while emphasizing the need for a human-centered approach that places the well-being of people and the planet at the forefront of innovation.

Thank you for embarking on this journey with us.

Lucknow

Dr. Zeba Aqil
Dr. Khurshed Alam
Dr. Tahir Hussain Ansari



Foreword



INTEGRAL UNIVERSITY इंटीग्रल विश्वविद्यालय

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FOREWORD

It is with great pleasure that I pen this foreword for the edited book *"Sustainable Development in the Era of Artificial Intelligence"*, a compilation of scholarly papers from the International Conference on Multidisciplinary Perspective towards Sustainability in the Era of Artificial Intelligence, hosted by the Department of Humanities and Social Sciences, Integral University, Lucknow. This volume represents a rigorous exploration of the intersection of artificial intelligence (AI) and sustainable development, one of the most compelling challenges of our time.

In an era marked by rapid technological advancements and rising environmental and social challenges, AI offers transformative potential for achieving the United Nations' Sustainable Development Goals (SDGs). From optimizing resource management to addressing climate change and fostering equitable growth, AI presents opportunities that are as promising as they are complex. However, these possibilities also raise ethical, socio-economic, and systemic challenges, demanding a thoughtful, multidisciplinary approach.

This book is a vital contribution to this dialogue, showcasing how AI can drive sustainability while addressing concerns like inclusivity, environmental stewardship, and ethical integrity. The contributors tackle critical topics such as AI-driven climate solutions, advanced healthcare systems, smarter urban governance, and economic inclusivity. Special attention is given to challenges in countries like India, where developmental disparities call for tailored, context-specific strategies.

What distinguishes this volume is its interdisciplinary scope, uniting perspectives from Computer Science, Environmental Studies, Social Sciences, and Public Policy. This collaborative approach offers a holistic roadmap toward sustainable innovation, bridging theory and practice. The editors, Prof. Zeba Aqil, Dr. Khurshed Alam, and Dr. Tahir Hussain Ansari, deserve commendation for their meticulous work in curating a cohesive narrative.

This book is more than a research compilation. It provides a roadmap for integrating AI into sustainable development. May this volume inspire enduring dialogue and meaningful action in our quest for a sustainable future powered by artificial intelligence.

Prof. Javed Musarrat
Vice Chancellor

Contents

<i>Preface</i>	<i>III</i>
<i>Foreword</i>	<i>V</i>
<i>Contributors</i>	<i>IX</i>
Chapter 1 Holistic Healing Redefined: Integrating Spirituality, Mental Health and Human Rights	
DR. ZEBA AQIL, DR. ANAS JAMEEL	1
Chapter 2 Urban Good Governance in India: Theoretical and Policy Perspective	
DR. KHURSHED ALAM.....	13
Chapter 3 Analysing the Trends in Public Expenditure on Education in India	
DR. TAHIR HUSSAIN ANSARI, HUMA SHAHID	33
Chapter 4 Harnessing the Potential of Micro, Small and Medium Enterprises (MSMEs) for Achieving Sustainable Development: A Synergistic Perspective	
PROF. MADHURIMA LALL, ANJALI YADAV.....	47
Chapter 5 Leading the Green Charge: A Look at SBI's (State Bank of India) Green Banking Initiatives	
FAIZA IMTYAZ, ADEEBA BEG	59
Chapter 6 Sustaining Excellence: Academic Institutions in the Era of Artificial Intelligence	
DR. UTKARSH MISHRA.....	73
Chapter 7 A Parametric Study of Renewable Energy Consumption and Carbon Emission in Indian Context	
PROF. MOHD AZAM KHAN, AYSHA KHAN	87
Chapter 8 Impact of Artificial Intelligence in Promoting Healthy Lifestyle Choices through Integrating Psychosocial and Ergonomic Strategies	
DR. TULIKA A. KHARE.....	101
Chapter 9 Attainment of Sustainable Development Goals in Uttar Pradesh	

PRIYA AWASTHI, RIYA AWASTHI	109
Chapter 10 Social Innovation in Sustainability Transition: Approaching Sustainable Development through Social Innovations	
DR. ZIA AFROZ, DR. NEHA SINGH.....	119
Chapter 11 Technological Advancements and Quality of Education	
DR. PRIYANSHI GUPTA	129
Chapter 12 Role of Education for Sustainable Development	
DR. SULTANA KHANAM MOZUMDER.....	141
Chapter 13 Ramarajya and Symbolization of Sustainable Development: Indian Perspectives of Sustainable Good Governance	
EKANSH AWASTHI.....	153
Chapter 14 The Influence of Emotional Intelligence on Leadership Effectiveness: A Comprehensive Review	
SANDIP SUTRADHAR.....	161
Chapter 15 Beyond The Screen: Navigating the Complex Interplay of Social Media and Family Dynamics	
ALFISHAH RAHMAN.....	169
Chapter 16 A Way Forward Towards Sustainability in the Era of Artificial Intelligence in Achieving Sustainable Development Goals (SDGS)	
NAGHMA.....	177
Chapter 17 The Impact of New Media on Youths in the Age of Globalisation: A Study of Youths in Aligarh	
DR. FAIZAN HAQUE.....	183
Chapter 18 India's Reproductive Rights: Legal and Socio-Cultural Crossroads	
DR. VANDANA MISHRA, DR. ZEESHAN WARSI	193

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Chapter 1

Holistic Healing Redefined: Integrating Spirituality, Mental Health, and Human Rights

DR. ZEBA AQIL

DR. ANAS JAMEEL

Abstract

The interrelationship between spirituality, mental health, and human rights is increasingly recognized as essential to holistic healthcare, yet it remains insufficiently integrated within mental health frameworks. This paper investigates the role of spirituality in enhancing psychological wellbeing and posits that spiritual care should be acknowledged as a fundamental human right. Through a critical analysis of interdisciplinary literature, the study examines how spiritual practices contribute to mental health by providing emotional resilience, fostering meaning, and supporting overall psychological stability. The research identifies key spiritual elements that positively impact mental health, emphasizing the therapeutic value of spiritual expression and practices in diverse cultural contexts.

Furthermore, the paper argues that integrating spirituality within mental health services aligns with human rights principles, advocating for the recognition of spiritual care as a necessary dimension of healthcare. By exploring ethical, legal, and clinical perspectives, the study underscores the need for healthcare systems to embrace spiritual care as a human right, ensuring that mental health services respect and uphold the spiritual needs of individuals. The findings call for a redefinition of mental health policies and practices to incorporate spiritual care, thereby enhancing the quality of care and promoting a more holistic approach to mental health. This research aims to influence policy development and clinical guidelines, advocating for the integration of spiritual care as an indispensable component of mental health services in line with human rights imperatives.

Keywords: Human Rights; Spirituality; Mental Health; Psychological Wellbeing

1. Introduction

Mental health is increasingly recognized as a critical component of overall health, influencing individuals' ability to lead fulfilling lives and engage meaningfully with society. However, traditional mental health frameworks often focus primarily on psychological and medical approaches, frequently neglecting the spiritual dimension, which plays a significant role in many individuals' lives. Spirituality, defined broadly as the search for meaning, purpose, and connection beyond oneself, has been shown to significantly impact psychological wellbeing, offering resilience, emotional stability, and a sense of peace, particularly in times of distress. The growing body of evidence suggests that spirituality is not merely an adjunct to psychological health but a fundamental element that contributes to holistic healing. Despite this, the integration of spirituality into mental health care remains limited, hindered by secular orientations, institutional biases, and a lack of formal recognition within clinical practice.

One of the critical challenges in contemporary mental health care is the insufficient incorporation of spiritual care as a core component of therapeutic practice. This gap is not merely a clinical oversight but also an issue of human rights, as the right to health encompasses mental, physical, and spiritual dimensions. The exclusion of spiritual care from mental health services can result in incomplete care, particularly for individuals whose spiritual beliefs are integral to their identity and coping mechanisms. This disconnect highlights the need to reconceptualize mental health care through a more inclusive lens that respects and addresses the spiritual needs of patients. This paper aims to explore the interrelationship between spirituality, mental health, and human rights, proposing that spiritual care should be recognized as a fundamental right within mental health frameworks. Specifically, the study seeks to:

- Examine how spirituality contributes to mental health and psychological wellbeing, emphasizing the therapeutic benefits of spiritual practices.
- Advocate for the recognition of spiritual care as a human right, aligning mental health practices with broader ethical and legal principles that uphold the dignity and holistic needs of individuals.

Recognizing spiritual care as a critical element of mental health not only enhances clinical outcomes but also aligns with the broader

human rights framework that emphasizes respect for the individual's holistic wellbeing. By integrating spirituality into mental health services, healthcare providers can offer more comprehensive and person-centered care that acknowledges the diverse needs of patients. This study addresses a crucial gap in mental health policy and practice, advocating for a paradigm shift towards an inclusive model of care that respects spiritual, psychological, and human rights dimensions. Such an approach is essential for fostering an environment where mental health care is truly holistic, supporting the full spectrum of human experience and contributing to more effective and compassionate healthcare.

The following sections will delve into the existing literature on spirituality and mental health, critically examine the barriers to integrating spiritual care, and propose an integrative model that aligns with human rights principles. Through this exploration, the paper aims to advocate for a redefinition of mental health care that prioritizes the inclusion of spiritual care as a fundamental human right, enhancing the overall quality of mental health services.

2. The Role of Spirituality in Mental Health: A Pathway to Holistic Healing

Spirituality, often defined as the search for meaning and connection with something greater than oneself, has emerged as a vital component in mental health and holistic healing. Research underscores the positive relationship between spirituality and psychological well-being, revealing that spiritual practices such as meditation, prayer, and community engagement reduce stress, enhance emotional resilience, and promote recovery from mental illnesses (Mahida, 2015). These practices foster a sense of purpose and connectedness, which are essential in coping with existential challenges and emotional distress (Kaneez & Ansari, 2014). Additionally, the inclusion of spirituality in treatment plans has shown to alleviate symptoms and reduce relapse rates in patients with severe mental disorders (Chidarikire, 2012).

The incorporation of spirituality into mental health care recognizes the interconnectedness of mind, body, and spirit, aligning with the principles of holistic health. Holistic approaches emphasize not just symptom management but the nurturing of overall well-being through practices that integrate spiritual care with psychological and physical health. Studies have shown that addressing patients' spiritual needs can

enhance recovery by fostering hope, self-confidence, and positive coping mechanisms (Sawab et al., 2024). Spirituality also bridges gaps in traditional care by promoting self-awareness and moral grounding, which are critical in managing complex mental health conditions (Amato & Szydowski, 2015).

As mental health professionals increasingly recognize the therapeutic potential of spirituality, its integration into care protocols becomes a pragmatic imperative. Structured spiritual interventions, such as yoga and guided meditation, have demonstrated measurable benefits in improving mental health outcomes, enhancing mindfulness, and cultivating emotional stability (Ghiya, 2019). However, these practices also require cultural sensitivity and a personalized approach to address diverse spiritual beliefs and values. By embracing spirituality as a core element of mental health care, practitioners can create more inclusive and effective frameworks for holistic healing, ultimately fostering greater well-being across varied populations (Nolan, 2012).

3. Spirituality as a Human Right: Implications for Mental Health Care

The recognition of spirituality as a fundamental human right has significant implications for mental health care, aligning with the broader framework of holistic healing. Spirituality transcends religious affiliation, encompassing the intrinsic human search for meaning, connectedness, and self-actualization (Irudayadason, 2018). This recognition demands that mental health systems respect and integrate spiritual needs into care plans, addressing the broader dimensions of human existence. Studies indicate that spirituality fosters resilience, emotional stability, and a sense of purpose, which are critical in navigating mental health challenges (Chidarikire, 2012). Such integration is not only ethically mandated but also enhances therapeutic outcomes by acknowledging and supporting the spiritual dimensions of well-being.

The integration of spirituality in mental health care is pivotal for addressing disparities and fostering inclusivity in a multicultural context. Acknowledging spirituality as a human right necessitates a patient-centered approach that honors diverse spiritual beliefs and practices without imposing any specific religious framework (Carmo, 2022). Spiritual care includes creating a space for patients to explore

existential questions and seek solace in their spiritual practices, thereby promoting holistic recovery. Moreover, healthcare providers must be culturally competent and trained to engage with patients' spiritual dimensions sensitively, enhancing trust and therapeutic alliances (Hamilton et al., 2017).

Ensuring spiritual care as part of mental health services reinforces the ethical commitment to comprehensive and dignified care. Evidence suggests that spiritual interventions, such as meditation, mindfulness, and spiritual counseling, positively impact mental health outcomes, fostering hope, reducing anxiety, and enhancing coping mechanisms (Hefti, 2011). These practices respect the patients' autonomy and rights, promoting a sense of agency and belonging. Incorporating spirituality into mental health frameworks is not only a response to patients' expressed needs but also a progressive step toward achieving equitable and holistic mental health care for all (Greasley et al., 2001).

4. Integrating Spirituality into Mental Health Policy: A Rights-Based Approach

The integration of spirituality into mental health policy reflects a paradigm shift toward rights-based, holistic care that addresses the multifaceted nature of human well-being. Recognizing spirituality as a core dimension of health aligns with the World Health Organization's inclusion of spiritual well-being in its definition of health. Spirituality, encompassing the search for meaning, purpose, and connectedness, has been shown to enhance psychological resilience, coping mechanisms, and overall mental health outcomes (Irudayadason, 2018). Policies that integrate spirituality ensure that mental health services are not only inclusive but also responsive to the diverse cultural and existential needs of individuals, fostering equity in care delivery (Hamilton et al., 2017).

A rights-based approach to mental health policy mandates the protection and inclusion of spiritual needs as part of a comprehensive care framework. This approach emphasizes that access to spiritual care is a fundamental human right, particularly in mental health settings where patients often face existential crises and seek meaning beyond clinical interventions. Empirical studies highlight the positive effects of spiritual care on reducing anxiety, fostering hope, and promoting recovery in mental health patients (Chidarikire, 2012). By embedding spiritual care into policy frameworks, governments and organizations

can ensure the systematic inclusion of spiritual assessments and interventions in treatment plans, addressing the holistic needs of individuals while upholding their rights and dignity (Hefti, 2011).

The operationalization of spirituality in mental health policy necessitates culturally sensitive training for healthcare professionals and the establishment of guidelines for spiritual assessments and interventions. Policies must account for the pluralistic nature of spirituality, ensuring inclusivity while avoiding the imposition of specific religious beliefs. Research suggests that integrating spirituality into care enhances therapeutic relationships, improves patient satisfaction, and contributes to better clinical outcomes (Carmo, 2022). A rights-based framework supports these initiatives by advocating for systemic changes that prioritize spiritual care as an essential component of mental health services, bridging gaps in existing care models and advancing the global movement toward holistic healing (Greasley et al., 2001).

5. Spiritual Interventions in Mental Health Care: Bridging Gaps in Holistic Healing

Spiritual interventions in mental health care represent a transformative approach to addressing the multifaceted needs of individuals, bridging significant gaps in holistic healing. These interventions, including practices such as meditation, mindfulness, prayer, and spiritual counseling, are increasingly recognized for their therapeutic potential in fostering emotional resilience and psychological well-being. Research demonstrates that engaging in spiritual practices can significantly alleviate symptoms of anxiety, depression, and trauma by promoting a sense of purpose, hope, and interconnectedness (Nolan, 2012). Additionally, these interventions support the development of healthier coping mechanisms, reducing the risk of relapse and enhancing recovery trajectories (Chidarikire, 2012).

The integration of spiritual interventions into mental health care frameworks addresses the limitations of conventional biomedical approaches, which often fail to encompass the existential and emotional dimensions of healing. Spiritual care acknowledges the importance of patients' inner lives and belief systems, offering a pathway to holistic recovery that harmonizes mind, body, and spirit (Hefti, 2011). For instance, mindfulness-based therapies, rooted in spiritual traditions, have been shown to reduce stress and improve

emotional regulation, while practices such as forgiveness and gratitude foster greater psychological stability (Carmo, 2022). By embracing spiritual interventions, mental health care providers can create more inclusive and patient-centered models that recognize the diverse needs of individuals from various cultural and spiritual backgrounds.

To fully realize the potential of spiritual interventions, mental health care systems must incorporate structured training and evidence-based practices into professional development programs. Practitioners should be equipped to conduct spiritual assessments and integrate these findings into personalized care plans that respect patients' cultural and spiritual preferences. Empirical studies emphasize the need for clear guidelines to ensure ethical and effective implementation, avoiding the imposition of specific beliefs while fostering a safe environment for spiritual exploration (Hamilton et al., 2017). By bridging the gaps between traditional mental health care and spiritual healing, these interventions advance the broader vision of holistic health, ultimately improving patient outcomes and quality of life (Greasley et al., 2001).

6. Human Rights and Spiritual Care in Mental Health: Ethical Considerations

The integration of spiritual care into mental health frameworks is increasingly recognized as a human rights imperative, emphasizing the ethical obligation to respect individuals' spiritual and cultural identities. The United Nations' Universal Declaration of Human Rights affirms the right to freedom of thought, conscience, and religion, which extends to the inclusion of spiritual care in health services. In mental health care, this principle is crucial as it ensures that individuals' spiritual needs are acknowledged and addressed, fostering a holistic approach to recovery (Irudayadason, 2018). This approach not only aligns with ethical obligations but also enhances the therapeutic process by affirming the inherent dignity and worth of every individual (Hamilton et al., 2017).

Ethical considerations in integrating spiritual care necessitate a balance between respecting patients' autonomy and avoiding the imposition of specific religious or spiritual beliefs. Mental health practitioners must adopt culturally sensitive and patient-centered approaches to spiritual care, ensuring that interventions are tailored to individual preferences and values (Greasley et al., 2001). Ethical

frameworks in this domain emphasize the importance of informed consent, confidentiality, and non-discrimination in the provision of spiritual care (Hefti, 2011). By respecting patients' spiritual rights and preferences, mental health services can create inclusive environments that uphold the principles of equity and justice, crucial for effective and ethical care delivery.

The incorporation of spiritual care into mental health services also presents challenges related to resource allocation, professional training, and institutional policies. Ethical frameworks should guide the development of training programs that equip mental health professionals with the skills to address spiritual needs without bias or coercion. Moreover, institutional policies must provide clear guidelines to prevent conflicts of interest and ensure accountability in spiritual care provision (Carmo, 2022). Embedding spiritual care within mental health frameworks reinforces the broader commitment to human rights, ensuring that care is not only ethically sound but also responsive to the diverse needs of individuals across cultural and spiritual spectra (Chidarikire, 2012).

6. Spirituality, Mental Health, and Human Rights: Case Studies in Integrated Care

The integration of spirituality into mental health care through a human rights lens has demonstrated transformative potential, as evidenced by numerous case studies in diverse clinical and cultural settings. For example, spiritual care interventions in a United Kingdom mental health facility showed improvements in patient outcomes, including reduced anxiety and enhanced coping mechanisms, when spiritual needs were addressed alongside conventional therapeutic methods (Chidarikire, 2012). This case underscores the ethical imperative of acknowledging spirituality as a fundamental aspect of holistic care, ensuring that mental health practices align with patients' cultural and spiritual values (Irudayadason, 2018).

In a U.S.-based case study, a community mental health program incorporated spiritual counseling as part of a patient-centered care model. This intervention, particularly among patients with a history of trauma, resulted in decreased depression and substance use, highlighting the role of spirituality in fostering resilience and self-efficacy (Hefti, 2011). The program emphasized the importance of training practitioners to engage respectfully with patients' diverse

spiritual beliefs, ensuring that care was both inclusive and aligned with human rights principles. This approach demonstrated the capacity of integrated care to create a supportive therapeutic environment that respects individual autonomy while addressing the holistic dimensions of health.

In a rural Indian context, a case study of mental health services integrating yoga and meditation as spiritual interventions revealed significant improvements in psychological well-being and social functioning among individuals with chronic mental health conditions (Carmo, 2022). This initiative illustrated the importance of culturally relevant spiritual practices in enhancing care delivery, particularly in underserved populations. Furthermore, it reinforced the argument that integrating spirituality into mental health care is not merely an enhancement but a right, ensuring equitable access to interventions that honor the whole person. These case studies collectively highlight the critical role of spiritual care in bridging gaps in mental health systems while upholding the dignity and rights of diverse populations (Greasley et al., 2001).

7. Future Directions: Spirituality, Mental Health, and Human Rights in Holistic Healing

As the fields of spirituality, mental health, and human rights converge, future directions in holistic healing emphasize integrating these domains into comprehensive frameworks that address the full spectrum of human needs. Emerging research highlights the role of spirituality as an essential component of mental health care, offering pathways for emotional resilience, self-actualization, and meaning-making in the face of adversity (Nolan, 2012). Policymakers and healthcare providers must prioritize the inclusion of spiritual care as a human right, embedding it within national mental health strategies and ensuring equitable access across diverse populations (Irudayadason, 2018).

Advancements in technology and digital health provide promising avenues for the integration of spirituality into mental health care, particularly through telehealth and mobile applications designed for spiritual practices like mindfulness, meditation, and prayer. These platforms can make spiritual interventions more accessible and culturally adaptable, allowing practitioners to tailor support to individual needs while respecting cultural diversity (Chidarikire,

2012). Moreover, multidisciplinary approaches combining spiritual care with psychological and medical interventions can address the interconnectedness of mental, physical, and spiritual well-being, creating synergistic effects that enhance overall health outcomes (Hefti, 2011).

Education and training for mental health professionals remain critical to fostering ethical and effective integration of spirituality in care settings. Future initiatives should focus on developing evidence-based curricula that incorporate spiritual assessments and interventions while emphasizing cultural competence and human rights frameworks (Carmo, 2022). Additionally, robust research is needed to build the empirical foundation for spirituality in mental health, with interdisciplinary studies exploring its impact on diverse populations. As these future directions are realized, spirituality, mental health, and human rights will converge to redefine holistic healing, offering inclusive and transformative care for all (Greasley et al., 2001).

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Chapter 2

Urban Good Governance in India: Theoretical and Policy Perspective

DR. KHURSHED ALAM

There is no doubt that promoting social justice and long-term economic success requires improving governance. Whether or not this is realised will depend on how rapidly leaders in the federal, state, and municipal governments can adjust to the intricate developments in the social, political, and economic spheres. Therefore, in order to improve public goods and services delivery as well as the effectiveness and efficiency of the functioning of political and governmental institutions, reforms are required. This asks for the decentralisation and fortification of local governments in order to facilitate public participation in development and governance, in addition to allowing civil society organisations to take ownership of development initiatives and activities. Transparency promotes openness through feedback and reporting, clear policies and procedures, and the conduct of individuals in positions of power. It gives the public clear guidelines and information that is easy to understand. Decentralisation, including political devolution, de-concentration, delegation, and transfer to non-governmental organisations, promotes public administration and good governance by offering an institutional framework to bring decision-making closure to the people and by encouraging collaboration and synergies among actors and organisations to achieve economic and human development goals. Legislators, development specialists, and officials have so backed decentralisation plans and initiatives over time. In light of this, the current paper aims to examine the definition, development, structure, and results of governance. The primary sources of data for the paper are relevant literature and secondary data.

Introduction

In an attempt to foster democratic ideals, the Indian government has tried to modernise its administrative and political structures at the beginning of the twenty-first century. A change in development paradigms has caused the focus of development planning to move to participatory development with social justice and equity. In order to ensure public involvement in decision-making and give local demands

more weight, it called for decentralised governance. The 73rd and 74th Constitutional Amendment Acts of 1992 included provisions for safeguarding local self-governance by granting local authorities increased authority. As a result, the units of local self-government were granted statutory standing and the state governments were given the necessary guidelines for creating three tiers of local government in both rural and urban areas. Remarkably, local organisations have developed into parts of the governments and actively take part in the process of developing the socioeconomic growth of the region. A significant change to decentralise power at the municipal level in the country's metropolitan areas started with the 74th Constitution Amendment Act of 1992.

As a result of significant global developments, many industrialised and developing nations embraced new approaches to public administration and governance in the 1980s and 1990s. Among the principles and characteristics of the new public management movement were catalytic change, community empowerment, competitiveness, mission-driven, results-focused, customer-driven, enterprising, decentralisation, and market orientation. These characteristics developed into the tenets that guided the government-reinvention initiatives of multiple federal agencies, state governments, and local governments in the 1990s. Although they are necessary for promoting human development that is sustainable and reducing poverty, governments are unable to achieve these goals on their own. Collaboration and collaborations with corporations and civil society organisations through democratic, transparent, and participatory methods are essential for successful government. In the twenty-first century, governments have four important roles to play in fostering sustainable social and economic prosperity. Building institutional competency is the most crucial of them since it creates the environment and foundation for all other tasks. The second most important thing is the formulation and execution of policies that support the conditions necessary for productive engagement in a global economy. The third function focuses on policies that assist the underprivileged in order to attain economic growth that is socially just. The last one highlights how important government is to improving public administration's capacity to promote socially just economic growth, enable global economic participation, and combat poverty.

Concept of Governance

There is consensus regarding the general components of governance, despite the fact that many people have defined it differently depending on the situation and viewpoint. Webster's Dictionary defines "governance" as "the act of governing or exercising authority," but it also refers to the management of all these processes that, in any society, define the conditions that, on the one hand, allow people to become more capable of realising their full potential and expanding their options, and, on the other hand, define the environment in which these opportunities are defined. According to UNDP reports, governance is a set of institutions, rules, and values that a society uses to manage its social, political, and economic affairs through interactions between the public, private, and governmental sectors. It is the manner in which a community arranges itself in order to reach consensus, mutual understanding, and action. It consists of the procedures and systems that enable individuals and communities to express their concerns, resolve conflicts, and take advantage of their legal rights and duties. The boundaries and incentives for people, organisations, and businesses are established by laws, institutions, and practises.

The idea of governance, as evidenced by the literature review, shows that the term is applied in a number of contexts. Five dimensions are significant in the context of governance, according to Stoker (1998). Focus is being placed on the following areas: (a) governance is understood as a complex system of institutions and actors drawn from the government; (b) it acknowledges the limitations and roles associated with addressing social and economic issues; (c) it highlights the power dynamics present in the relationships between institutions for collective action; (d) it is concerned with autonomous, self-governing networks of actors; and (e) it acknowledges the ability to accomplish goals through the application of novel tools and techniques. Hence, the network of relationships between the three actors—the state, the market, and society—is what governance is all about. According to Indian policy officials, corruption is the most pervasive and established example of bad governance in the nation. Enforcing incentive structures that reflect social norms and values; reforming the civil service to improve transparency, accountability, efficiency, and sensitivity in public administration at all levels; improving procedural reforms covering all facets of governments'

interactions with the public; and empowering women and other marginalised and weaker segments of society are among the many areas that the Planning Commission focused on in its National Human Development Report (2002).

Evolution of Governance

The term "governance" gained popularity in tandem with the State's evolving role definition. Following World War II, the state was viewed as a growth engine; nevertheless, due to its poor performance in development, it started to bear the brunt of all the problems. The search for alternate frameworks for policy making and alternative institutions for providing public services was sparked by ineffective development programmes, their poor implementation, and wasteful and incompetent absorptions of international aid (Mathur, 2008). The World Bank introduced the idea of governance in a report on Sub-Saharan Africa in 1989. The World Bank proposed that a governance crisis was making the region's investment and fiscal adjustment initiatives ineffectual. As a result, the first formulation of the plan to improve governance focused on management and administrative competence (World Bank, 1989; 1992).

In recent years, the uses of governance indicators and interest in governance quality have grown explosively due to four sets of events (Christiane and Oman, 2006). These are the end of the Cold War changed how rich nations and international aid organisations viewed the governments of developing nations. In 1996, the World Bank also drastically changed its approach by centering its lending strategy around the serious issue of corruption that exists in many of the borrowing nations. International investment in developing countries has increased dramatically over the last few decades, supporting the idea that good governance is essential, or at the very least creates an environment that is conducive to sustainable development and the reduction of poverty. As the amount of assets at risk increased, so did the importance of these nations' governance systems. The competition between these nations to draw in foreign capital led to a change in the focus of policy towards better governance.

The comparatively inadequate or unsatisfactory outcomes of the extensive policy reforms implemented during the 1980s and 1990s facilitated the increasing comprehension and acknowledgement that sound governance was necessary for the triumph of the market

reforms. The New Institutional Economics movement, led by Douglas North, has shown how crucial a nation's formal and informal institutions, as well as how they interact with the actions of political and business leaders are to the success of that nation's long-term economic growth, improvement of human welfare, and societal development. An increasing number of people believe that a society's institutional efficacy determines the quality of its governance (Gani and Duncan, 2008). International investors, aid donors, and development analysts' growing interest in governance ultimately sparked initiatives to operationalize and quantify governance using quantitative metrics. Approximately 140 user-accessible sets of governance indicators, consisting of hundreds of individual indicators, are currently available, according to one estimate. As a result of their widespread use, a number of "guides" and "inventories" on governance indicators have been created, including helpful "how to use" and "where to find" details on numerous indicators.

Framework for Governance

A framework that is deeply entrenched in the Indian context and upholds the fundamental principles of the Constitution must be developed. In addition, it would incorporate the global governance discourse and modify its teachings to fit the Indian setting. The proposed framework endeavours to incorporate fundamental tenets of the global and Indian discourses on governance.

Good Governance

"Good Governance" refers to the good qualities and ideals that are connected to high-quality governance, whereas "Governance" is a neutral phrase on its own. The majority of measurement frameworks have a tendency to gauge governance quality without breaking governance down into its constituent parts. Because of this, the majority of frameworks use general guidelines to evaluate governance quality without giving much thought to the governance itself. Such an approach's primary drawback is that it does not produce actionable diagnostics that can be linked to and identifiable with certain national institutions.

Given the rapid expansion of cities and the trend of ever-increasing urbanisation, urban good governance is crucial. It is no longer limited to offering services and utilities to the general population. Because top-down, conventional forms of governance have grown outdated,

inappropriate, and restrictive, the term "good governance" has gained popularity. Characteristics of effective urban governance include security, civic engagement, efficiency and equity, accountability and transparency, and the creation of partnerships. It is safe to include bankability, competitiveness, and liveability in addition to these requirements. Improving their ability to facilitate market borrowing for investments in municipal growth necessitates urgently prudent and efficient financial and asset management. The Indian government took the lead and enacted a number of civic-centric reforms in urban governance, including the adoption of laws pertaining to public disclosure and community participation, the allocation of funds by local governments for the purpose of reducing poverty, the charging and collection of user fees, the simplification of procedures, etc.

Increased human well-being and sustainable development are influenced by the efficacy of government. Experience and statistics suggest that ineffective governance is often associated with ongoing poverty, regardless of whether there is a clear connection between good administration and improved human well-being. The continuation of poverty, which was thought to be brought about by the inefficient and wasteful use of public resources, widespread corruption, and inadequate service delivery in many Third World nations, actually gave rise to questions about the quality of governance in the 1990s. The concept of good governance gained increasing attention from multilateral organisations such as the World Bank and UNDP, which realised that sustainable development requires changes to political and administrative systems. Although nations and organisations have slightly varying definitions of governance, they always emphasise how important it is for public administration and high-quality institutions to provide services.

There are many different approaches, plans, and tools available today to improve transparency in local government. They are made up mostly of the laws and measures that encourage administrative openness, like the Public Disclosure Law and the Community Participation Law, as well as e-Government, Citizens' Charters, Report Cards, Social Audit, and the Right to Information Act. Public management is made transparent and accountable by various administrative changes, municipal reforms, and service level benchmarks. The three pillars of e-democracy are participation, e-government, and e-democracy. Governments are vital to the

development of the internet. They have to accept new methods and technologies that increase the scope of participatory democracy. The Indian government is very focused on using ICT to spread information and aims to be SMART (Simple, Moral, Accountable, Responsible, and Transparent), which has led to the creation of many e-governance initiatives.

In 2005, the Indian government started implementing civic-centric reforms to ensure urban good governance and improve urban local administration. The modifications also sought to improve accountability and openness, efficiency and efficacy in urban local government, civic service delivery, and community participation. The structure and functioning of urban local government are undergoing substantial changes mostly as a result of citizen-centric reforms; nonetheless, there are important regional and state-specific differences in the manner in which these changes are carried out.

Actually, the phrase "social accountability" was also used somewhat loosely in the recently released research on the subject (Joshi, 2008). According to Peruzzotti and Smulovitz (2006), some individuals describe "social accountability" as citizen groups that monitor the use of official authority. Other examples include policy lobbying, social responsibility debates, and policy making participation (Arroyo, 2004, Malena et al., 2004). Certain scholars tackle the problem from an empirical perspective, looking at how certain institutional environments are used for certain interactions, responsibility, and inclusiveness (Cornwall and Coelho, 2006). After analysing the results of five donor-led voice and accountability activities, Menocal and Sharma (2008) discovered that donor expectations of these initiatives in terms of eradicating poverty or attaining the Millennium Development Goals were unduly high. Nonetheless, neither health nor education services are the explicit focus of the interventions they looked at in their study. Nguyen and Lassibille (2008) provide an intriguing study that compared the effectiveness of top-down and bottom-up accountability systems in schools in Madagascar using a random experiment involving multiple methodologies. The findings showed that demand-led interventions significantly enhanced teacher behaviour, increased school attendance, and raised test scores compared to top-down initiatives, which seemed to have little effect. On the other hand, an extensively publicised study on road building in

Indonesia revealed that improved official audits had a higher average impact than citizen monitoring (Olken, 2007).

Conflicting findings emerged from a number of recent studies that tried to assess how information and transparency affected citizen involvement and service performance. According to a study conducted in three Indian states, a community-based information campaign had a generally positive impact on students' academic performance (Pandey et al., 2009). It had the greatest effect on teacher presence; it had much less of an effect on student learning. In a different study, Banerjee et al. (2009) show that information dissemination had no impact on engaging with the educational system or demanding accountability, based on the communities' ability to engage in mechanisms for accountability and the ensuing effects on service quality in India. Khemani (2008) draws attention to how the community participation with information circumstances in Uganda and India differ significantly in her comparative analysis.

Public Expenditure Tracking Surveys (PETS) are a tool that many countries use to find gaps and leaks in the financial flow to local governments. In a survey of PETS in Africa, Gauthier (2006) reported that almost all of them had brought attention to the waste of resources that could have been used to achieve the goals. Reinikka and Sevansson (2005) found that just 13% of the real money meant for schools really ended up there. The study's major conclusions remain valid despite the fact that later research has cast doubt on this often cited instance (Hubbard, 2007). The Civil Society Coalition for Quality in Basic Education in Malawi has used PETS three times to achieve impact, each time honing its techniques (IBP,2008). The PETS survey data allowed for the resumption of teacher education courses, timely payment of teachers' salaries, and the allocation of monies for students with special needs. According to Gauthier (2006), the preliminary findings of PETS in Tanzania for health and education spending carried out in 1999 and 2001 show a notable decline in corruption. However, they are the outliers. Despite its success in identifying leaks and making them public, the evidence shows that PETS have only led to reforms in a limited number of countries (Gauthier, 2006). Raising provider responsibility through a number of channels, including complaint hotlines and complaint management systems, is a popular tactic. These guidelines are intended to raise issues with the appropriate staff as soon as possible and to develop

procedures for processing complaints under the supervision of top managers. They are supposed to be used in conjunction with Citizen Charters, which set criteria for fundamental service delivery. Most of these technologically based systems are limited to urban use. Having this direct relationship with citizens allowed managers to hold frontline carers accountable. The findings of the evaluation research showed that frontline staff members performed better and that corruption had significantly decreased (Caseley, 2003). The Online Complaint Management System (OCMS) was developed by a citizen organisation in Mumbai, India. It combined all urban public service complaints into an online database that could be used to produce statistics about the length of time it took to address complaints in relation to predefined standards. A World Bank study found that the strategy worked well for forcing public servants to address complaints right away. In another project, the citizen group Lok Satta from Andhra Pradesh worked with officials from the local government to distribute citizen charters for 40 common public services in 100 towns throughout the state, along with efficient complaint procedures. Examining this experience makes it seem as though the charters have been more successful in cities than in rural ones because of greater awareness. The compensation clause, which demanded that the wages of the at-fault employee be reimbursed, was also found to have been "fully applied" (Sirker and Cosic, 2007). The other study's findings show that public complaints about local services, or what Hossain (2009) calls "rude accountability," often take the form of individuals voicing their dissatisfaction about the treatment they received from frontline staff members.

Citizen Report Cards takes its methodology from the business world and applies it to consumer satisfaction surveys. Surveys may be carried out by independent institutions or citizen groups. The Bangalore Citizen Report Cards received a positive evaluation from the Public Affairs Centre, indicating that they significantly improve public services. A UN poll indicates that although corruption appears to have declined, public satisfaction with services has grown (UN, 2007). The evaluation also showed that the report cards had increased public mobilisation and awareness. What's more interesting is that government agencies were suddenly willing and able to exchange information with neighbourhood organisations. McNamara (2006) analysed the use of report cards in the health sector in the United

States. She finds that the impact is greatly influenced by the indicators that are actually used to assess providers. Report cards have been used in Uganda to rank hospitals (Uganda DISH, 2004). According to Deichmann and Lall (2007), there is some influence on citizen happiness from factors unrelated to the level of services that families actually receive. Bold et al. (2010) propose that the Delivering Services Indicators for education and health services in Africa show how recent efforts to use Citizen Report Cards are moving away from satisfaction surveys and towards more objective indicators of the true quality of services received.

The premise behind citizen report cards (CRCs) is that by keeping an eye on service providers' timeliness and calibre, you may incentivize them to do better (Deichmann & Lall, 2007). This is sometimes affected by the "glare effect," which involves exposing underperformers and putting the services under "public scrutiny" (Paul, 2006). It is common practise to track performance advancement over time with the report card (Ackerman, 2005). Therefore, the essential idea is to see citizens as clients who provide feedback rather than as receivers of services (Ackerman, 2005; Paul, 2006). The most well-known example is the citizen report card programme implemented in Bangalore by the NGO Public Affairs Centre (Paul, 1998, 2006; Ravindra, 2004). A sample group of 807 general houses and 327 lower-income households (both in the same places) were asked how happy they were with government services in 1993, marking the first attempt at a citizen's report card. Within the public agencies that oversee public-sector banks, regional transport, telephones, municipal corporations, electricity, water, health, and house sites, the Bangalore Development Authority had the highest rate of dissatisfied customers (65%). It was also found to have the greatest degree of corruption. The media had a significant role in disseminating the study's findings, even in the face of the agencies' "lukewarm" response, with five out of the eight agencies either not showing any interest in the report or disputing its conclusions. Paul (1998) claims that this enhanced public pressure on the agencies and brought attention to the pervasive corruption issues in society. Indeed, a "partial improvement in public satisfaction" was noted in the Public Affairs Centre's second report card from 1999 (Paul, 2006). There seems to be an increase in corruption in a number of agencies. A few months after receiving the second report card, the chief minister of Karnataka

formed the Bangalore Agenda Task Force (BATF) as a Public-Private-Civil Society Forum, suggesting that this report card may have had more immediate repercussions as well (Paul, 2006). A noticeably better level of satisfaction was found on the third report card in 2003 (Ackerman, 2005). In general, the outcomes varied depending on the agency. The story involved more than just providing the report card data; leadership, resources, and the institutional atmosphere of each agency all had a role in determining the impact that the citizen report card had (Ravindra, 2004). Even though citizen report cards have been introduced in other countries, like the Philippines and Ukraine, and in other Indian cities, like New Delhi, Mumbai, Hyderabad, and Chennai (Ravindra, 2004), further research is necessary to determine the impacts of these programmes.

There's no doubt that service transparency via Citizen Report Cards can make a big difference. One outcome, according to Paul (2006), was the pride that staff felt when they compared their performance to that of other agencies and the drive that came from inter-agency competition. According to Ravindra, the Bangalore Development Authority and Bangalore Water Supply and Sewerage Board initiated training programmes to enhance the customer-oriented skills of its employees following the release of the second score card (Ravindra, 2004). Although more and more governments are opening up their budgets, there is a growing recognition of the value of public involvement in budgeting. Various initiatives are employed to ensure budget transparency and accountability, including the well recognised participatory budget method, gender budgeting, public expenditure monitoring, participatory auditing, adoption of the Open Budget Index, and other budget advocacy techniques (McGee & Gaventa, 2010).

Over the last twenty years, there has been a growing understanding that increased participation in budget creation is essential to the effectiveness, democracy, and relevance of local governance. Governments started to promote information exchanges between residents and local government agencies. This strengthened linkages between statutory institutions, local governments, and authorities who are interested in discussing local budgets. Reducing communication barriers between the public and the government and making sure that budget decisions represent priorities that have been established by consensus are two of Ackerman's stated goals for participatory

budgeting (Ackerman, 2005). Enhancing budget targeting and increasing the transparency of public expenditure can be achieved through the use of participatory budgeting (Sirker and Cosic, 2007). Unlike traditional budget planning, participatory budgeting establishes a mutually beneficial approach in which different stakeholders can offer input to directly impact policy modifications and public resource distribution.

Many organisations use Community Score Cards to assess how well local public services are doing. Citizen report cards, community monitoring, and social audits are combined to create community score cards. Community meetings are a part of the Community Scorecard process, where stakeholders, users, and providers discuss how well public services are performing. It also entails the providers' self-assessments of their own work and the formulation of an action plan in response to the Community Scorecard process' outcomes. There were notable disparities between how communities and doctors assessed themselves, according to a study on the use of community score cards in Andhra Pradesh's basic healthcare services (Misra, 2007). When services in Madagascar were assessed using the Local Governance Barometer (LGB), the results showed extremely low levels of citizen sense of accountability (Dufils, 2010). The Tanzanian project Hakikazi used a combination of citizen report cards and community score cards to assess the effectiveness of their Poverty Reduction Plan (Sundet, 2004).

There are a few minor variations between Community Monitoring and Community Scorecards. Thus, monitoring the ongoing activities of government agencies is the goal. Community monitoring is commonly used to ensure that performance is in line with standards. It has aided in the disclosure of instances of public money misappropriation or corruption. By using community monitoring to upgrade local amenities, the Uganda Debt Network has found success in Uganda. Skilled community workers discovered that the contractors' building of the schools and health posts had "shoddy work" upon inspection (Renzio et al., 2006). Several instances of missing equipment assigned to a health post were noticed by the community through surveillance, and an official investigation led to the recovery of the missing equipment. Higher teacher incentives and stringent accountability measures, according to Duflo et al. (2008), caused teacher attendance rates to rise in Indian schools.

Principles of Governance:

The quality of governance has been the focus of governments and multilateral / donor agencies across the world. This has led to many of them defining qualitative standards of governance in the form of characteristics or principles that 'governance' ought to reflect for it to be good or ideal. Some of the basic governance principles or attributes include the following:

Accountability – both horizontal and vertical

Transparency

Equity

Performance (effectiveness and efficiency)

Participation / voice

Rule of Law

Strategic vision

Lack of arbitrariness

Ethics and integrity

Predictability

Outcomes of Governance

For better or worse, the outcome is typically the consequence of how the procedures are controlled. Governance is primarily concerned with the mechanisms that are used to wield authority. Put differently, governance pertains to the methods by which public policies are developed and executed, or alternatively, how various stakeholders communicate and resolve their disagreements. However, governance indicators must differentiate between inputs, processes, outputs, results, and impacts in order to offer useful tools for policy formation, programme monitoring and evaluation, lobbying, and advocacy. Process indicators describe how well governance is carried out in terms of achieving the desired results. How to systematically and cohesively measure governance processes in terms of critical processes is the difficulty (Julius, Hyden, and Mease, 2002). Therefore, rather of being tailored towards development, the framework is tuned towards capturing the initial parameters and intermediate operations.

Essentials of Governance

All around the world, governments and multilateral / donor organizations have been concentrating on the quality of governance. As a result, many of them have established qualitative standards of governance in the form of traits or tenets that 'government' should uphold in order to be effective or ideal. Some of the basic governance principles or attributes include the following:

Accountability – both horizontal and vertical

Transparency

Equity

Performance (effectiveness and efficiency)

Participation / voice

Rule of Law

Strategic vision

Lack of arbitrariness

Ethics and integrity

Predictability

Stakeholders of Governance

The idea of governance has grown to include a wide range of stakeholders. Stakeholders have typically been divided into three basic categories: the State, the Market, and Civil Society. While admitting the idea, it is crucial to pinpoint the key players in each group: The State is made up of various segments of actors, such as elected officials, the political executive, bureaucracy/civil servants at various levels, as well as the various government organs (Legislature, Executive, and Judiciary) and their instrumentalities, independent accountability mechanisms, etc. The private sector, which includes business firms ranging from huge corporate houses to small scale industries/ institutions, is included in the market. The civil society, on the other hand, is the most diversified and normally includes all organizations not included in the first two categories. It includes NGOs/CSOs, media organizations, trade unions, religious organizations, etc.

The Results of Governance

Procedures are the means by which power is exercised, and the manner in which those processes are managed typically dictates the results—for better or worse. To put it another way, governance describes the processes that are employed to create and implement public policies or to communicate and settle disputes amongst different stakeholders. However, for governance indicators to be effective instruments for policy creation, programme monitoring and evaluation, lobbying, and advocacy, they must be able to distinguish between inputs, processes, outputs, results, and impacts. Process indicators evaluate how well governance is working in terms of how the intended outcomes are achieved. One challenge is figuring out how to logically and methodically assess governance procedures in terms of important processes (Julius, Hyden, and Mease, 2002). Therefore, the framework is modified to capture the initial characteristics and intermediate processes rather than concentrating on development outcomes.

Conclusion

In the 1980s and 1990s, a large number of industrialized and emerging nations embraced new methods for public administration and governance in light of the extensive changes occurring throughout the world. Catalytic transformation, community empowerment, competitiveness, mission-driven, results-oriented, customer-driven, enterprising, decentralization, and market orientation were among the tenets and traits of the New Public Management movement. These qualities ended up serving as the cornerstones for numerous federal agencies, state governments, and local governments' attempts to remake themselves. Governments have a critical role in promoting sustainable human development and lowering poverty, but they are not sufficient to accomplish these objectives on their own. Cooperation and partnerships between the commercial sector and civil society organizations through democratic, transparent, and participatory forces are necessary for effective governance.

It is commonly acknowledged that the processes of globalization and economic liberalization have rendered governments incapable of performing their customary duties and obligations. Globalization and technological improvements will therefore continue to change the rules for nations. In countries trying to increase national competitiveness, the government's roles as the main supplier of goods

and services, the controller of the national economy, and the promoter of economic growth have largely lost their legitimacy. As a result of significant global developments, many industrialized and developing nations embraced new approaches to public administration and governance in the 1980s and 1990s. Among the principles and characteristics of the new public management movement were catalytic change, community empowerment, competitiveness, mission-driven, results-focused, customer-driven, enterprising, decentralization, and market orientation. These characteristics evolved into the guiding tenets of many federal agencies, state governments, and local governments' attempts at government reinvention in the 1990s. Although they are necessary for promoting human development that is sustainable and reducing poverty, governments are unable to achieve these goals on their own. Collaboration and collaborations with corporations and civil society organizations through democratic, transparent, and participatory methods are essential for successful government. In the twenty-first century, governments can contribute to sustainable social and economic growth in four main ways. Developing institutional capability is crucial because it creates the foundation and environment for everything else. The second vital duty is to adopt and implement policies that create an atmosphere that permits productive engagement in a globalized economy. The third function focuses on policies that assist the underprivileged in order to attain economic growth that is socially just. The fourth function emphasizes how important government is to improving public administration's capacity to promote economically fair growth, enable global economic participation, and combat poverty. Effective and efficient urban administration strengthens and promotes democracy and good governance. For elected officials to protect the rights of residents and get tax and other money to support service delivery, ULBs must function effectively. Thus, democracy requires upholding law and order as well as advancing and defending public benefits. Developing nations have many challenges, but one of the biggest has been building public administration capacities. Because of the rapid pace of globalization, the public sector is under pressure to enhance its capacity to manage the new opportunities and challenges presented by communication technology, economic liberalization, and globalization.

Due to new policy regimes like globalization and liberalization, which have increased reliance on governments to establish the social, political, and economic circumstances necessary for the private sector to compete more successfully, economic competition has intensified. It was expected that the government's involvement in society would decrease in the 1980s and 1990s in order to address the opportunities and problems brought about by the modern forces of change. Governments came to the realization that, in a world where technological advancements and globalization are always changing the rules of the game, they could no longer fulfill their intended functions. Most people reject the notion that governments are the main source of products and services and the main force behind economic growth in countries trying to become more competitive. E-government has improved public administration's capacities and altered how the government system engages with its constituents and the outside world. Meaningful e-government development has added value to government operations because it (1) strengthens people's capacities and empowers them, (2) enables them to successfully participate in political and economic development, and (3) adds to the principles of inclusive governance and democratic institutions. There are three main categories of participation: (1) political, in which individuals engage in politics and support the rule of law; (2) social and cultural; and (3) economic, in which people can utilize their abilities and earn money to broaden their possibilities.

The three pillars of e-democracy are participation, e-government, and e-democracy. Governments will play a crucial role in the development of the internet. Technology and methods that will improve participatory democracy must be used and modified. Fifteen guiding principles have been presented by international organizations to guarantee the smooth functioning of e-government. A few of these are the following: public involvement, development plans, partnerships, monitoring and evaluation, perception and values, access and skills, privacy and security, legal framework, organizational culture and skills, coordination, political leadership and long-term political commitment, and prioritization of development needs. These guidelines highlight how critical it is to boost administrative efficacy and efficiency while upholding transparency and accountability in the delivery of public goods and services to the broader public. Prioritizing the needs of the people is another important concept in e-government.

In order to improve public engagement with policy and decision-makers, the government can streamline service delivery, improve information access, increase government transparency, decrease corruption, and promote dialogue that is centered on the needs of the people.

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Chapter 3

Analysing the Trends in Public Expenditure on Education in India

DR. TAHIR HUSSAIN ANSARI

HUMA SHAHID

Abstract

This study looks at the patterns of public spending on education in India with the goal of clarifying financial priorities, distribution patterns, and the effects these have had on educational results over the last few decades. This study does a thorough examination of the variations in educational spending at the federal and state levels using extensive data from government budgets, policy papers, and statistics reports. The research highlights the differences in state-by-state spending on education and looks at how these differences affect educational fairness and quality. According to the study, increases in important educational indicators including student performance, enrolment ratios, and literacy rates are correlated with public spending. Additionally, it evaluates the results of flagship government programs and policies meant to improve educational accessibility and infrastructure. Persistent difficulties are identified by the research, such as in efficient money utilization, regional disparities, and the need for a more focused strategy to meet the particular requirements of underfunded regions. The study's policy suggestions, which highlight the significance of a planned, fair, and sustainable approach to finance, are intended to maximize investments in education.

Keywords: Public Expenditure, Education Financing, India, Education Outcomes.

Introduction

This study will also examine the obstacles that have prevented the best use of educational funding, including in efficiencies in the bureaucracy, corruption, and opaque financial management. Comprehending these obstacles is crucial in order to devise strategies that might optimise the effectiveness and influence of public funding on education. The study's design is to offer a comprehensive and lucid analysis. The first few parts will cover the body of research on public

spending on education and place India in the perspective of global trends. Subsequently, the research methods will be presented, including the data sources, analytical instruments, and study structure. The study of public expenditure patterns, emphasising notable changes in national and state budget allocations, will be the main topic of the following sections. There will also be an analysis of how economic variables, such as GDP growth and budget deficits, affect the financing of education. Further insights will come from case studies of certain states that have made significant advancement so had difficulties with financing education. Finally, the data will be summarised and links between spending patterns and academic performance will be made. It will be suggested that policies be changed, with a focus on addressing regional inequities through focused interventions, better financial management, and more investment. To sum up, the goal of this research is to advance our knowledge of the complex relationship between the evolution of public education spending in India and the implications for the country's educational environment going forward. It aims to support policy decisions that might result in more efficient and fair financing for education, eventually promoting a better educated and affluent society, by offering evidence-based insights.

Outcomes of Education Financing

In India, the state and federal governments are in charge of education. Central as well as State governments are in charge of running higher educational establishments (HEIs). The Department of Education develops and carries out national strategies and procedures to increase access to both offers scholarships and education. There are two departments under the Ministry of Education: (i) the Department of Literacy and School Education, and (ii) the Higher Education Department. The duties of the Department of School Education include institutions like Navodaya and Kendriya Vidyalayas. It also provides funding for certain initiatives. Adopted by governments like Samagra Shiksha, This, aims to increase school accessibility and general educational objectives as well as the National Midday Meal Program. The Higher Education Department Central universities, IITs, and NITs are funded by education. IISERs, IIMs, Planning Schools, and Among other things, architecture. Additionally, it finances the higher authorities on education, AICTE and UGC. The Department also encourages innovation and research in higher learning, and offers financial aid for greater learning. This memo looks at the distribution

to the Ministry for 2023–2024, as well as total funding problems in the field of education.

Overview of the Education Outcome Financing

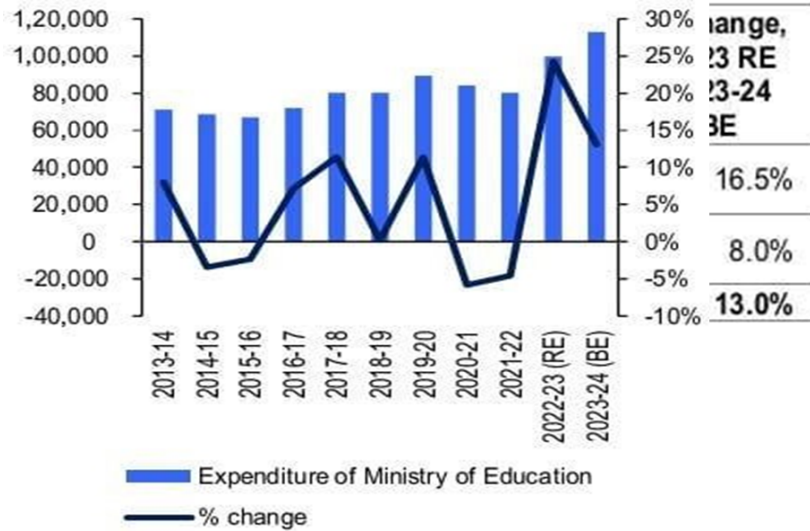
The Ministry of Education has been given a budget of Rs 112899 crore for 2023–2024. This represents a rise in 13percent more than the updated 2022–2023 forecasts. The Department of Literacy and School Education has received a budget of Rs 68,805 crore or 61percent of the Ministry's outlay). This represents arise in16.5 percent more than the updated 2022–2023 forecasts. The Allocated to the Department of Higher Education 34,095 crore rupees, or 39 percent of the Ministry's spending), a rise of8percentoverthe updatedprojectionsfor2022–2023.

Table1: Ministry of Education Outcomes (in Indian Rupees)

	2021-22 Actuals	2022- 23 RE	2023-24 BE	% change, 22-23 RE to 23-24 BE
School Education	46,822	59,053	68,805	16.5%
Higher Education	33,531	40,828	44,095	8.0%
Total	80,352	99,881	1,12,899	13.0%

Sources: PRS; Expenditure Budget 2023–2024.

The Ministry of Education has received an increase in funding at an average yearly rate of4.7 percent during 2013–14. The amount that the government spent decreased. In, 2020–21 and2021–22, the ministry may owe the COVID-19 outbreak. The updated estimates for2022–2023exceedactualsby24 percent.

Figure1: Expenditure of Ministry of Education Outcomes

Department of School Education

The Department of School Education has been given Rs 68,805 crore for 2023–2024; this is 17 percent more than the revised estimate for 2022–2023 years. In 2020–2021 and 2021–2022, the real cost of the Department decreased as a result of COVID-19 epidemic that forced the closure of schools. The bulk of the Department's budget for 2023–2024. The Samagra Shiksha Abhiyaan is the focus of (54 percent) 37,453 crore rupees. Independent entities under the Department to get Rs 14,391 crore, or 21 percent of the Department's outlay. Bodies are included in this. The Kendriya Vidyalaya Sangathan (KVS), for example the CBSE and the Navodaya Vidyalaya Samiti (KVS). It is projected that the Pradhan Mantri Poshan Shakti Nirman (PMPOSHAN) initiative will get Rs 11,600 crore, or 10 percent of the total the department's projection. Table 3 displays the solution.

Table 2: The Department of School Education

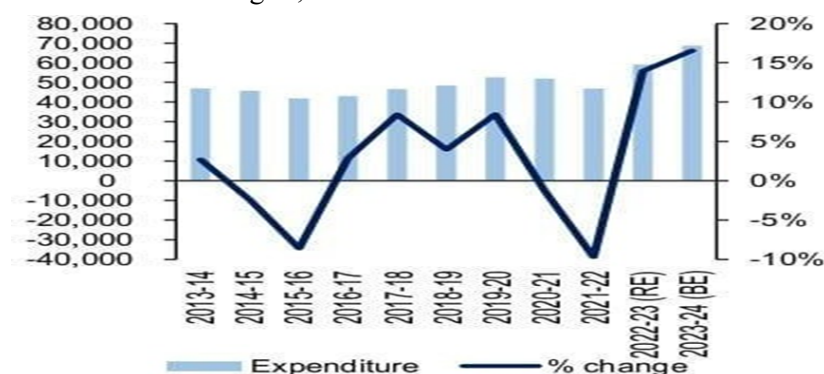
Major Heads	Actual 2021-22	2022-23 RE	2023-24 BE	% Change (RE to BE)
Samagra Shiksha	25,061	32,152	37,453	16%
Autonomous Bodies*	10,933	12,859	14,391	12%
PM POSHAN**	10,231	12,800	11,600	-9%
PM SHRI***	-	-	4,000	-
NCERT	320	405	519	28%
Others	25	537	478	-11%
National Means cum Merit Scholarship Scheme	252	300	364	21%
Total	46,822	59,053	68,805	17%

Sources: Expenditure Budget, 2023-24, PRS.

The National Education Policy, 2020 (NEP) aims to: (i) reform curriculum and pedagogy, including early childhood education nursery; (ii) organise and schedule the completion of goals for fundamental numeracy and literacy; and (iii) attain universal access to education.

Figure2: Department of School Education

Sources: Union Budgets, 2015-16 to 2023-24



Samagra Shiksha Abhiyan

The Department of School Education's main program, Samagra Shiksha Abhiyan, aims to provide universal access to education. Education as outlined in the NEP. It encompassed (i) Sarva Shiksha Abhiyan, which aimed to accomplish universal elementary education; (ii) the Rashtriya Madhyamik Shiksha Abhiyan was aimed upon raising secondary school enrolment, and (iii) Teacher Education programs aimed to enhance and preserve instructors' proficiency. The National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN) Bharat is one of the scheme's primary instructional components. Mission, which aims to fulfil the NEP's objective of Numeracy and Literacy at the Foundation (FLN). The National Program for Principals and NISHTHA, or Teachers Holistic Advancement, is a program for training teachers under the plan, which, as a result of the COVID-19, has grown online pandemic. The Plan offers assistance with children with disabilities in the form of accessible course materials, including textbooks in Braille, and financial assistance for kids with exceptional requirements. The Plan also provides funding for progress monitoring of academic success via the National Survey of Achievement and an analysis of FLN, the Study of Foundational Learning (FLS). The plan has been given a budget of Rs. 37,453 crore for 2023–2024.

PM Schools for India's Future (PM-SHRI)

In terms of NEP goals, 14,500 PM-SHRI schools are meant to act as model schools under this program. The five-year plan will run from 2022–2023, until 2026–2027. Regarding this during the course of the project, the anticipated total cost of Among the Rs 27,360 crore, Rs18,128 crore will be the federal government's contribution. In 2023-24, Amounts provided under the initiative total Rs 4,000crore.

Pradhan Mantri Poshan Shakti Nirman (PMPOSHAN)

PM-POSHAN, formerly known as the Mid-Day Meal Scheme, offers prepared midday meals to qualified students attending schools run or supported by federal, municipal or state governments. The plan aims to enhance children's nutritional status while motivating them to engage in class room activities instruction. The program is supported by law. In, accordance with National Food Security Act Section 5, 2013.20 Rs. 11,600 has been allotted to the program. Crore by 2023 and 2024.

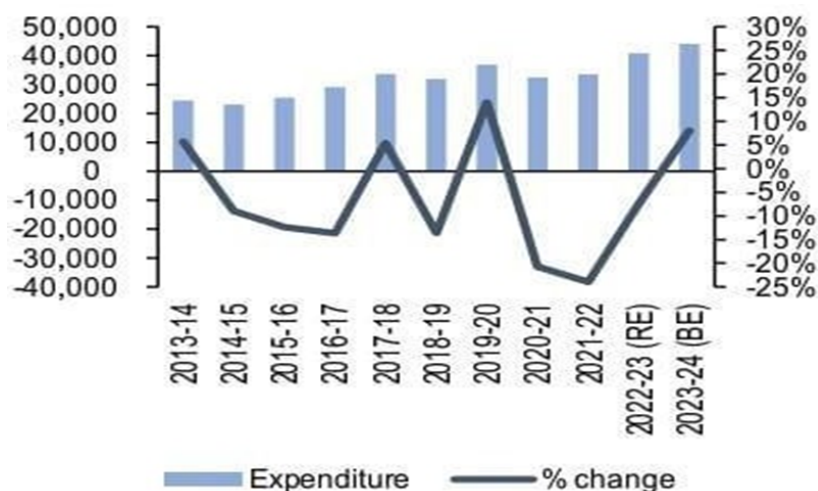
NIPUN Bharat

In response to concerns about academic performance, the NIPUN Bharat Mission was introduced in July 2021.²⁸ It seeks to fulfil the NEP goal of global literacy and numeracy foundations (FLN) of students in Class 3 and below who have not that, by 2026–2027. Setting up the mission will include of national and state-level goals for literacy and numeracy, and offering assistance in the kind of financing and advice to the states, in addition to creation of educational materials and digital tools.

Department of Higher Education

For 2023–24, the Department of Higher Education has been given an increase of Rs 44,095 crore. Eight percent higher than the updated 2022–2023 predictions. Since, collaborating with the Department of School Education, the real the Department of Higher Education's spending also decreased in the 2020–21 and 2021–22 years.

Figure3: The Department of Higher Education's



Sources: Union Budgets, 2015–16–2023–24

The expected increase in spending for the three major components of the Department's allotment is less than 5 percent above the updated projections for in 2022–2023. First among them are funding allocations to central colleges, which are expected to get an extra Rs 11,529 crore, up 4 percent. The next one is amount allotted to the Indian Institutes of Technology (IITs), which are anticipated to get Rs

9,662 crore (3 percent rise). And lastly, legal and government entities under the Department shall be given an estimated at Rs 5,780 crore, up 4percent. Such organisations like the University Grants Commission (UGC), which oversees colleges and universities (include certain criteria) and provides funding for them. As it encompasses the All-India Council for Technical Education (AICTE), which oversees, finances, and organizes the construction of technical as well as teaching management.

Table 3: The Department of Higher Education's

Major Heads	Actual 2021- 2022	2022- 23 RE	2023- 24 BE	% Change (RE to BE)
Grants to Central Universities	8,750	11,034	11,529	4%
Indian Institutes of Technology	8,082	9,345	9,662	3%
Statutory/Regulatory Bodies (UGC and AICTE)	5,029	5,551	5,780	4%
National Institutes of Technology (NITs) and IIST	3,485	4,444	4,821	8%
Student Financial Aid	1,872	1,813	1,954	8%
World Class Institutions	1,046	1,200	1,500	25%
Indian Institute of Science, Education and Research (IISERs)	1,032	1,398	1,462	5%
Indian Institutes of Management	651	608	300	-51%
Indian Institutes of Information Technology (IIITs)	407	488	560	15%
Others	3,176	4,948	6,528	32%
Total	33,531	40,828	44,095	8%

"Table 3: The Department of Higher Education's" This template is mostly based on details that are frequently seen in departments related to higher education. Key information from the Department of Higher Education, such as budget allocation, may be included in the table. The

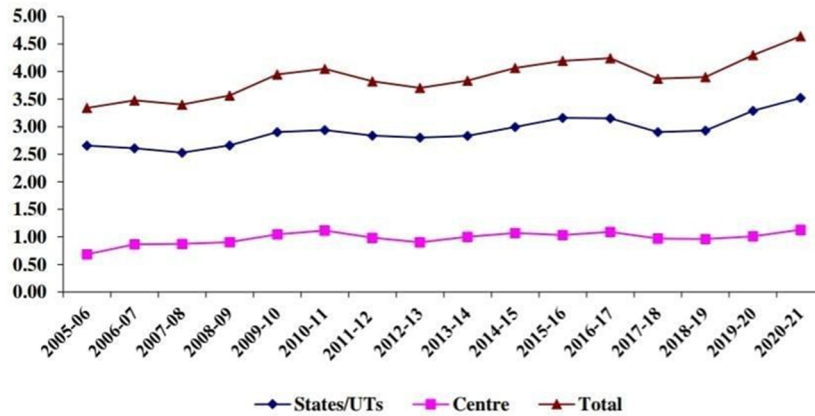
precise focal areas, the availability of data, and the preferred format may all be taken into consideration while modifying this conceptual framework chart. Please let me know if you would want any extra information or a specific focus to be included.

Public Expenditure on Education

Public spending on education has a significant impact on how well a nation develops academically and generally. Over time, the Indian government's allocation of funds for education has changed to align with shifting policy frameworks, economic situations, and priority lists. This section looks at the patterns in public education spending in India, with the use of a data table and a graphical representation that shows the changes overtime.

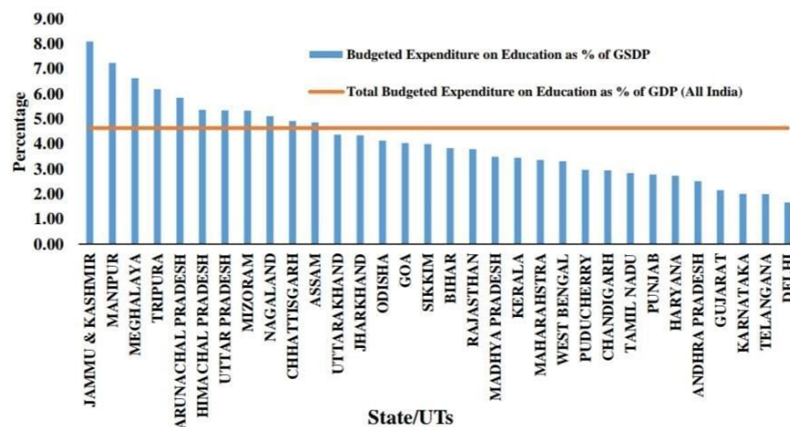
Expenditure on Education as Percentage of Gross Domestic Product (GDP) / Gross State Domestic Product (GSDP):

An essential part of researching patterns in Indian education funding is examining public spending on education as a percentage of GDP and GSDP. This indicator, which shows how much of the financial resources are going towards developing human capital, aids in evaluating the relative importance of education in the national and state economies. The state-level equivalent of GDP is called the Gross State Domestic Product (GSDP), and examining education spending as a proportion of GSDP offers information about how different states prioritise education in relation to their overall economic production. Shows the annual spending on education as a proportion of the national GDP for the states, the federal government, and the total this illustrates the trend of growing overall education spending as a proportion of GDP, which be gan in 2013–14 and reached 4.64 percent in 2020–21.

Figure 4: Expenditure on Education as Percentage of (GDP)

Source: Budgeted Expenditure on Education 2018-21

The GDP percentage share for the Centre and the States individually may be viewed as having a rising tendency over time. The center's share increased from 0.51 percent in 2000–01 to 1.11 percent in 2010–11, and following a minor decline in the previous two years, it has now risen to 1.13 percent in 2020–21. Despite, the state's share falling from 3.63 percent to 3.6 percent this year 2020–21: from 3.52 percent in 2000–01.

Expenditure on Education as Percentage of (GSDP)

Source: Budgeted Expenditure on Education 2018-21.

The graph shows that, in important states like Andhra Pradesh, Bihar, Chandigarh, Delhi, Goa, Gujarat, Haryana, Jharkhand, Karnataka,

Kerala, Madhya Pradesh, Maharashtra, Odisha, Puducherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Telangana, Uttarakhand, Uttar Pradesh, and West Bengal, the expenditure on education as a percentage of GSDP is less than the national level (4.64percent).

Conclusion

The examination of patterns in public spending on education in India highlights advancements as well as obstacles in the distribution and use of financial resources in this crucial area. The government's dedication to enhancing the nation's educational system is demonstrated by the steadily rising overall spending on education throughout time, both at the federal and provincial levels. Nevertheless, in spite of these rises, public spending on education as a share of GDP has continued to fall short of the often stated 6 percent objective, indicating the necessity for more funding. According to the report, spending on elementary, secondary, and post-secondary education has shown a variety of trends, with a progressive movement in favour of secondary and post-secondary education in recent years.

This change is consistent with the policy's developing emphasis on improving post secondary education quality and closing skill gaps in the labour market. Nonetheless, basic education still needs a lot of focus, especially in under served and marginalized areas. Regional differences in school finance continue to be a major source of concern. Inequalities in educational access and performance are made worse by the fact that states with lower Gross State Domestic Product (GSDP) frequently devote a lesser percentage of their budget to education. In order to guarantee that every region has the resources needed to enhance educational results, the research emphasises the significance of resolving these discrepancies through focused initiatives and fair resource allocation. The report also emphasises how government flagship initiatives like PM-SHRI and Samagra Shiksha Abhiyan have improved infrastructure and increased access to education. Enrolment rates and educational quality have increased significantly as a result of these initiatives; however, there are still issues with guaranteeing effective funding utilization and attaining the intended results. In conclusion, even though public spending on education has increased significantly in India, a more targeted and fair financing strategy is still required. Achieving the objectives outlined in the National Education Policy (NEP) 2020 and guaranteeing that every child and young adult

in India has access to high-quality education depend on addressing regional inequities, improving financial management, and raising total investment in education. In the end, this will support the socio-economic growth of the country and the building of an affluent, educated community.

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Chapter 4

Harnessing the Potential of Micro, Small, and Medium Enterprises (MSMEs) for Achieving Sustainable Development: A Synergistic Perspective

PROF. MADHURIMA LALL

ANJALI YADAV

Abstract

Micro, Small, and Medium Enterprises (MSMEs) play a critical role in this discourse due to their substantial contribution to employment and economic activity. This paper examines the role of MSMEs in sustainable development through a synergistic approach, highlighting both opportunities and challenges in leveraging their potential. Despite their adaptability and innovative capacity, MSMEs face constraints such as limited access to finance, technology, and markets, which hinder their full potential. The study employs secondary data to analyze the performance and distribution of MSMEs in India, focusing on gender disparities and regional imbalances. It reveals a strong male dominance in MSME ownership, particularly in small and medium enterprises, with a higher concentration of both enterprises and employment in urban areas. The paper discusses the implications of these trends for sustainable economic growth, emphasizing the need for gender inclusivity and balanced regional development. Key findings include the significant role of MSMEs in employment generation, with approximately 11.10 crore jobs created across various sectors. The research underscores the importance of integrating gender-focused and regionally balanced policies to enhance MSME productivity and sustainability. Recommendations include adopting an integrated policy approach, promoting skill development, and improving access to credit through government-sponsored agencies. By aligning policies and support mechanisms with sustainability goals, the paper argues that MSMEs can contribute more effectively to economic, social, and environmental sustainability. The ultimate goal is to foster a dynamic ecosystem where MSMEs are both beneficiaries

and drivers of sustainable development, advancing toward a more equitable and sustainable future for all.

Keywords: MSME, Sustainable Development, Sustainability, GDP, Employment, Government Policies

Introduction

In an era marked by rapid industrialization and growing environmental concerns, sustainable development has emerged as a critical global imperative. Central to this discourse is the need for inclusive and effective strategies that leverage the diverse capabilities of various economic actors. Micro, Small, and Medium Enterprises (MSMEs) represent a pivotal segment of the economy, accounting for a substantial share of employment and economic activity worldwide. MSMEs in India have emerged as a dynamic and vibrant sector of the economy. Harnessing their potential for sustainable development is both an opportunity and a challenge that requires a nuanced and synergistic approach. MSMEs are uniquely positioned to contribute to sustainable development due to their adaptability, innovation capacity, and proximity to local markets. Their ability to respond swiftly to changing economic conditions and consumer demands allows them to implement sustainable practices that are contextually relevant. Furthermore, MSMEs often foster local entrepreneurship and community engagement, which are essential for promoting sustainable economic growth and social equity. However, the potential of MSMEs is not fully realized in many contexts due to various constraints such as limited access to finance, technology, and markets. Addressing these challenges requires a synergistic perspective—one that recognizes the interdependencies between MSMEs and other stakeholders, including governments, financial institutions, and civil society organizations. By aligning policies, resources, and support systems, it is possible to create an enabling environment where MSMEs can thrive and contribute effectively to sustainable development goals. This paper explores the intersection of MSMEs and sustainable development through a synergistic lens. It examines how collaborative strategies can enhance the impact of MSMEs in achieving environmental sustainability, social inclusion, and economic growth. The discussion will highlight successful case studies and best practices that illustrate the potential for MSMEs to drive positive change when supported by cohesive and integrated efforts. Ultimately, the goal is to provide insights and recommendations that can guide policymakers, business

leaders, and development practitioners in fostering a dynamic ecosystem where MSMEs are not only beneficiaries but also key contributors to sustainable development. By leveraging the inherent strengths of MSMEs and promoting strategic collaborations, we can advance toward a more sustainable and equitable future for all.

Classification of Micro, small and medium Enterprises in India

Type of firm	Manufacturing sector (Investment in Plant and Machinery)	Service Sector (Investment in Equipment)
Micro Enterprises	Does not exceed Rs 2.5 Million	Does not exceed Rs 1.0 Million
Small Enterprises	More than Rs 2.5 Million but does not exceed Rs 50 Million	More than Rs 1.0 Million but does not exceed Rs 20 Million
Medium Enterprises	More than Rs 50 Million but does not exceed Rs 100 Million	More than Rs 20 Million but does not exceed Rs 50 Million.

Source: Government of India, Ministry of Micro, Small and Medium Enterprises.

Review of Literature

A substantial body of research has been conducted in India on various facets of MSMEs. Researchers have diligently reviewed the literature related to this topic. Key studies in this area include:

N. Aruna (2015) conducted a study to identify the challenges enterprises face that hinder their growth, which in turn impacts national economic development. The research indicated that India's increasingly globalized business environment has generally been favorable for expanding micro and small-scale industries. However, the study highlighted the need for simpler and clearer policies and regulations to help these enterprises better understand and implement them for compliance and benefit. It was also noted that many enterprises are unaware of existing government schemes and lack an understanding of effectively leveraging these resources.

Goel and Prakash (2019) conducted a study to understand, analyze, and interpret the role of micro-enterprises in the rapid economic growth of Haryana. The research utilized four key economic parameters—number of units, investment, employment, and production—to evaluate the contribution of micro-enterprises to the state's financial health and economic development. The study highlights that effective implementation of policies and programs for micro-enterprises requires robust governance characterized by SMART principles (Simple, Moral, Action-Oriented, Responsive, and Transparent).

Kavitha and Sangeetha (2014) examined the challenges faced by small enterprises in Tirupur. The growth of industries in Tirupur has encountered numerous issues, including industrial organization, city infrastructure, electricity shortages, export procedures, workforce management, government policies, and pollution. The study focuses on analyzing these problems for exporters in Tirupur, highlighting key issues such as competition, raw material shortages, and power deficits. It emphasizes the need for the government to address these challenges by developing appropriate policies and strategies.

Jessica and Marimuthu (2013) investigated the financial sustainability challenges faced by textile companies in Tamil Nadu from the perspective of general managers. Srinivas, K.T. (2013) emphasized the critical need for MSME development for India's overall progress. His research focused on understanding the concept of MSMEs, their needs, and the effective utilization of financial aids available to them in Karnataka. Gupta and Agarwal (2013) examined various schemes for MSMEs, with a particular focus on the financial and non-financial support provided by SIDBI to these enterprises.

Rao and Apparao (2013) studied MSMEs contribution to GDP, employment and the role of MSMEs in the supply chain for large businesses. They found that most of the MSMEs in rural areas face the problem of shortage of finance to advance business growth. MSMEs require lot of setup capital, liquid capital, investment capital to survive and grow in this competitive business world.

Yadav (2013), explored that MSMEs after their maximum use of trade credit approached commercial banks for short term borrowings. The owner's funds in these industries due to limited access to the market, are short in supply.

Shihabudheen N. (2013) conducted a study on the benefits and objectives of the MSMEs Act of 2006, which aims to provide facilities to MSMEs for their development and to boost competitiveness. The research focused on understanding the impact of the MSME Act on Small Scale Industries (SSI) units and offered recommendations for improving their performance. The study highlighted the creation of special funds for the promotion, development, and enhancement of competition, as well as the implementation of progressive credit policies for micro and small enterprises. Both primary and secondary data were utilized in the study.

Kumar, Gugloth (2012) conducted a study on the importance and performance of Micro, Small and Medium Enterprises in India. The target of this paper is to analyse financial support for MSMEs. The study further analyses the importance of working capital management in the success of small businesses.

Objectives of the study

1. To Analyze the Role of MSMEs in Sustainable Development.
2. To Identify Challenges and Opportunities for MSMEs.
3. To Assess the Impact of MSMEs on Local and Global Sustainable Development Goals (SDGs).
4. To Propose Synergistic Strategies for MSME Growth and Sustainability.

Research Methodology

To accomplish these research objectives, secondary data on various parameters have been gathered and analyzed. The data were sourced from various reports and official websites of relevant agencies.

Evaluation of Performance of MSMEs

The performance of the MSME sector is evaluated through periodic All India Censuses. The scope and coverage of the MSME sector were significantly expanded under the MSME Act of 2006, which introduced the concept of “enterprise” and included both manufacturing and service sectors, as well as defining medium enterprises within the MSME category. The table above illustrates a consistent upward trend in the number of enterprises, employment, and investment in fixed assets in India over time. Since FY 2006-07, the data also encompass activities in wholesale and retail trade, legal services, education, social services, hotels and restaurants, transport,

and storage & warehousing (excluding cold storage), with data extracted from the Economic Census 2005 by the Central Statistics Office, Ministry of Statistics and Programme Implementation.

Out of a total of 633.88 lakh MSMEs, 608.41 lakh (95.98%) were proprietary concerns. Ownership of these proprietary MSMEs was predominantly male, with men owning 79.63% of the enterprises, compared to 20.37% owned by women. This pattern was consistent across both urban and rural areas, though male ownership was slightly more prevalent in urban areas (81.58%) compared to rural areas (77.76%).

Percentage Distribution of Enterprises Owned by Male and Female Entrepreneurs

Category	Male	%	Female	%	Total
Micro	79.56	29.28	20.44	72.04	100
Small	94.74	34.87	5.26	18.54	100
Medium	97.33	35.83	2.67	9.41	100
All	271.63	100	20.37	100	300

Source: Annual Report of MSME (2022-23)

The above table explains the distribution of Enterprises owned by male and female entrepreneurs. Micro entrepreneurs are 29.28% of enterprises in the male category and followed by 72.04% of enterprises in female category. Small entrepreneurs are 34.87% of enterprises maintained by male category and 18.54% of enterprises in the female category. Medium sizes of entrepreneurs are 35.83% of enterprises in male category and 9.41% of enterprises are female category.

Percentage Distribution of Gender base ownership Enterprises in rural and urban areas

Sector	Male	Female	Total
Rural	77.76	22.24	100
Urban	81.58	18.42	100
Total	79.63	20.37	100

Source: Annual Report of MSME (2022-23)

The table provides insights into the distribution of enterprises by gender across rural and urban areas. It shows that the majority of enterprises are located in urban areas, with 54.20% of enterprises situated there, while 48.80% are found in rural areas. In rural areas, male owners dominate with 77.76 lakh enterprises, leaving 22.54 lakh

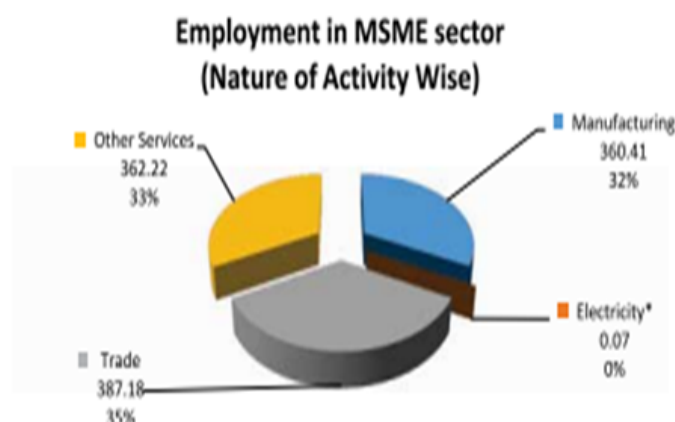
enterprises under female ownership. In contrast, urban areas have a higher number of male-owned enterprises, totaling 81.58 lakhs, compared to 18.42 lakh enterprises owned by females.

Estimated Employment in the MSME Sector (Activity Wise)

category	rural	urban	total	%
Manufacturing	186.56	173.86	360.41	32
Electricity	0.06	0.02	0.07	0
Trade	160.64	226.54	387.18	35
Other services	150.53	211.69	362.22	33
All	497.78	612.10	1109.89	100

Source: Annual Report of MSME. (2022-23)

The table estimates employment generated by the MSME sector, revealing that it has created a total of 11.10 crore jobs across various industries. This includes 3.60 crore jobs in manufacturing, 0.07 crore in non-captive electricity generation and transmission, 3.87 crore in trade, and 3.63 crore in other services. These jobs span both rural and urban areas throughout the country.



MSME and Sustainability

Sustainable Economic Growth

- **Gender Inclusivity:** Addressing gender disparities in MSME ownership is crucial for sustainable economic growth. Promoting female entrepreneurship can lead to more inclusive economic development, enhancing the overall productivity and resilience of the sector.

- **Regional Balance:** Ensuring that resources and opportunities are accessible in rural areas can contribute to a more balanced regional development, reducing the concentration of enterprises and jobs in urban areas. This can lead to more sustainable and equitable economic growth.

Productivity and Sustainability

- **Skill Development:** Investing in skill development aligns with sustainability by enhancing the productivity and capabilities of MSMEs. Higher productivity often leads to better resource utilization and can reduce waste, contributing to environmental sustainability.
- **Efficient Governance:** Implementing efficient governance practices ensures that MSME policies are effectively executed, leading to sustainable growth. Transparent and accountable governance supports the long-term sustainability of the sector by creating a stable and predictable business environment.

Resource Accessibility:

- **Credit Access:** Improving access to credit through government-sponsored agencies supports MSMEs in adopting sustainable practices. Financial support enables MSMEs to invest in green technologies and energy-efficient processes, contributing to environmental sustainability.
- **Support Mechanisms:** Targeted support mechanisms for female entrepreneurs and rural MSMEs can foster innovation and sustainable business practices. By creating an environment where diverse entrepreneurs can thrive, the sector can adopt more varied and potentially more sustainable approaches to business.

Sectoral Contribution to Sustainability

- **Employment and Environmental Impact:** MSMEs play a significant role in employment generation, which can have a positive impact on social sustainability by improving livelihoods. By integrating sustainable practices into their operations, MSMEs can also reduce their environmental footprint, contributing to broader sustainability goals.

Conclusion

The findings highlight the significant role of MSMEs in employment generation while revealing clear disparities in ownership based on gender and location. Despite the measures taken by the Government of India, the contribution of MSMEs to GDP has not increased to a satisfactory level over the past seven years. The sector remains characterized by strong male dominance, particularly in small and medium enterprises, with urban areas concentrating a larger share of both enterprises and jobs. To align with sustainability goals, it is essential to address these disparities through targeted policies and support mechanisms. Promoting gender inclusivity within the MSME sector not only fosters economic equity but also enhances sustainable development. Women entrepreneurs often face unique challenges, and supporting them can lead to more diverse and innovative business practices, contributing to overall sector resilience and sustainability. Improving access to resources and support in rural areas can balance regional economic opportunities, leading to more sustainable development. Rural MSMEs, when supported effectively, can contribute to localized economic growth, reduce regional disparities, and promote environmental sustainability through the adoption of green technologies and practices. Incorporating these initiatives into a broader sustainability framework helps ensure that economic growth within the MSME sector is inclusive, balanced, and environmentally responsible. By focusing on equitable distribution of enterprise ownership and fostering supportive environments for both male and female entrepreneurs, the sector can achieve sustainable development goals and enhance its contribution to the economy.

Discussion

The data presented provides a comprehensive overview of the distribution of enterprises and employment within the MSME sector, highlighting significant gender-based and geographical trends.

The data reveals a clear gender disparity in MSME ownership. Micro enterprises are predominantly owned by females, with 72.04% of these businesses under female ownership compared to 29.28% for males. In contrast, the small and medium enterprise categories show a strong male dominance. Small enterprises are 94.74% male-owned and 5.26% female-owned, while medium enterprises are 97.33% male-owned and 2.67% female-owned. This trend underscores the broader

issue of gender imbalance in larger and more established segments of the MSME sector.

The geographical distribution of enterprises by gender shows that urban areas have a higher concentration of MSMEs compared to rural areas, with 54.20% of enterprises located in urban settings. In rural areas, male entrepreneurs own 77.76% of enterprises, while female ownership is 22.24%. Urban areas also reflect a higher proportion of male-owned enterprises, totalling 81.58 lakhs, whereas female-owned enterprises number 18.42 lakh. This distribution indicates a concentration of both enterprise ownership and employment opportunities in urban areas, with a significant gender disparity remaining in both contexts.

The MSME sector plays a crucial role in employment generation across different sectors. The sector has created approximately 11.10 crore jobs, with significant contributions from manufacturing (3.60 crore jobs), trade (3.87 crore jobs), and other services (3.63 crore jobs). The data shows that manufacturing contributes 32% of the total employment, trade accounts for 35%, and other services contribute 33%. Rural areas contribute 497.78 lakh jobs, while urban areas account for 612.10 lakh jobs, reflecting a larger share of employment opportunities in urban settings.

Recommendations

It is recommended that the government adopt an integrated policy approach that includes several key components:

1. **Data and Governance:** Implement robust data collection and efficient governance to ensure accurate and actionable insights into the MSME sector.
2. **Skill Development:** Promote comprehensive skill development programs to enhance productivity and capabilities within the sector.
3. **Accessible Credit:** Facilitate easier access to credit through government-sponsored agencies specifically targeting MSMEs to support their growth and development.

By focusing on these areas, the government can boost productivity, enhance the contribution of MSMEs to economic growth, and foster a more supportive environment for small and medium enterprises.

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Chapter 5

Leading the Green Charge: A look at SBI's (State Bank of India) Green Banking Initiatives

FAIZA IMTYAZ

ADEEBA BEG

Abstract

In the contemporary era, the depletion of the natural surroundings has become widespread. Commercial enterprises, financial establishments, and corporations constitute an essential component of the ecosystem, thus necessitating these entities to prioritize environmental concerns. In fact, organizations have begun to modify their business practices to align with the imperatives of sustainable development. Notably, financial institutions, particularly banks, have initiated a new approach known as green banking, wherein they embrace eco-friendly practices in their operations. Green banking diverges from conventional banking in that it takes into account societal and environmental factors prior to commencing its activities. Its primary objective is to safeguard the environment by mitigating carbon emissions.

The research primarily centres on the State Bank of India (SBI) as an illustrative case within the realm of green banking, examining the fundamental alteration towards environmentally conscious banking practices. The case study delves into the approaches, methodologies, and tactics employed by the bank during the past 10 years to foster ecological sustainability. These endeavours comprises of responsible lending, investment in environmentally sustainable projects, and the adoption of environmentally sustainable technologies.

Additionally, the study sheds light on the positive impacts that green banking has on the environment, as well as the obstacles encountered by the bank such as lack of awareness, issues with diversification, and the high operational costs associated with implementing environmentally friendly initiatives. Furthermore, the study delves into the various green products offered by the bank to further promote sustainability.

Introduction

The increase in global temperature has initiated a concerning trend, leading to the subsequent rise in sea levels. Weather conditions are subject to significant fluctuations. It is anticipated that by the year 2030, approximately 700 million individuals will face the risk of displacement solely due to drought. The urgency lies in the imperative for every sector of the economy to promptly address the warming of the planet and its catastrophic consequences. Thus, it is crucial to prioritize the preservation of lives and livelihoods, and transition towards Sustainable Development as the framework for a more favourable future. Global economies must strive towards establishing an environmentally friendly, healthy, secure, and resilient atmosphere. This endeavour presents an opportunity for economies to redirect their focus towards sustainability, which has the potential to revolutionize the well-being of both humanity and the Earth.

In the prevailing context of climate change and inevitable Global warming, financial institutions such as banks assume a pivotal role. The risk associated with climate change permeates throughout various domains. The emission of CO₂ is a consequence of consumption, which in turn is facilitated by monetary means managed by banks. Banks possess a comprehensive understanding of consumer information pertaining to their consumption habits. They possess an extensive repository of data concerning consumer transactions and preferences. Consequently, they are able to monitor consumer carbon footprints. While banks themselves do not directly contaminate the environment, they engage in business dealings with firms that contribute to pollution. Thus, they bear a crucial responsibility in these circumstances. In the existing scenario, sustainability has emerged as an integral component in every sector. Development is deemed insubstantial unless it is sustainable. As a result of this shift towards environmental sustainability, the concept of green banking has gained considerable momentum.

Green banking pertains to the promotion of ecologically conscious practices and the reduction of carbon emissions resulting from banking activities. The fundamental goal of Green banking is to strategically oversee banking operations so as to foster environment friendly client behaviours (Ghosh et al., 2018). Green banking is a formidable tool in the arsenal of banks as it serves to mitigate operational costs, mitigate risks, enhance their reputation, and ultimately contribute to

environmental sustainability. On one hand, banks are able to achieve their commercial objectives of generating profits, while on the other hand, they are able to fulfil their social responsibility by giving back to society. The significance of banks in the economy cannot be understated, as every sector relies on them for financial support. Green banking ensures that environmentally friendly projects receive funding, while discouraging projects that pose a threat to the environment. As active members of society, banks bear the responsibility of working towards the improvement of the environment through the promotion of green practices.

Green banking, also referred to as sustainable banking, entails the adoption of environmentally friendly practices and green measures by banks in order to mitigate environmental degradation. This global trend in the banking industry revolves around the triple bottom line approach, which emphasizes the consideration of social, economic, and environmental aspects in banking operations. Given their tangible existence in the real world, banks are compelled to prioritize their own interests alongside those of society. One notable way in which banks are accomplishing this is through the promotion of digital transactions, which not only minimizes carbon footprints but also eliminates the need for consumers to physically visit a branch. Moreover, a significant number of banks have transitioned to paperless transactions, while others are actively exploring the concept of green financing.

Technology plays a pivotal role in the context of sustainable banking. Consequently, financial institutions have initiated the adoption of eco-friendly operations. Illustratively, the utilization of online banking, mobile banking, ATMs, and online bill payment exemplify such practices. It is evident that banks are increasingly embracing green banking practices, although in India, these initiatives are still in their early stages. Nevertheless, banks possess a substantial capacity to implement environmentally conscious measures, which will not only preserve the ecosystem but also foster long-term prosperity.

Literature Review

The investigation sheds light on the utilization of green banking measures by financial institutions, as well as the significance of these practices in fostering sustainability and fulfilling the United Nations' objectives for sustainable development. The paper is grounded in a

comprehensive analysis of relevant literature, encompassing various research articles and the websites of financial establishments. This inquiry is of a conceptual nature, uncovering the respective contributions of government bodies, enterprises, and individuals in advancing sustainability. Furthermore, it assesses the extent to which banks play a role in forging a sustainable world, by extending credit and making investment decisions through a sustainable lens (Bhat, 2022).

This inquiry assesses the notion of environmentally-friendly banking in India, encompassing the extent of its reach and the obstacles confronted by financial institutions in integrating sustainable banking practices. Secondary sources provide the basis for this investigation, as information is gathered from a variety of literary works, reports, published materials, and other relevant resources. The research underscores the imperative of adopting eco-conscious banking and elucidates the methodologies for embracing environmental sustainability, such as online banking, sustainable loans, eco-friendly credit cards, as well as harnessing solar power, among other strategies (Issue et al., 2015).

The inquiry examines the green banking products and green banking initiatives of the leading three public and private sector banks in India. The investigation aimed to comprehend the extent to which these banks have implemented green banking practices and to compare the practices of these public and private sector banks. The study utilizes secondary data in the form of annual reports, banks' websites, RBI reports, and articles. The investigation highlighted the importance of green banking practices by banks and financial institutions and clarified that both public and private banks are effectively utilizing green banking practices, although public sector banks exhibit superiority over private banks in terms of green banking practices. (Vadrane, 2016).

The study endeavours to comprehend the notion of green banking, the significance of green banking, and the strategies necessary to commence green banking. The investigation deduced that Indian banks possess ample potential in relation to green banking. Presently, they are deficient in executing green initiatives and participating in sustainable development (Kapoor et al., 2016).

The paper possesses a conceptual and qualitative essence. It delves into the initiatives of green banking and investigates their impact on the brand image and trust associated with environmental sustainability. The data is acquired through semi-structured in-depth interviews conducted with 36 managers at senior and middle levels, who represent the public and private sector banks. The study reveals that most of the participants are of the view that their respective banks create a diverse range of products and services related to green banking. A substantial number of them expressed that their banks actively participate in endeavours related to green corporate responsibility. Majority of the respondents firmly believe that the initiatives of green banking play a pivotal role in maintaining customer trust (Sharma & Choubey, 2022).

The study evaluates the efforts made by SBI and ICICI to implement green banking strategies with the objective of promoting sustainability. The investigation examines these financial institutions in order to analyse their environmentally-friendly initiatives aimed at conserving the ecosystem. The study utilizes a combination of primary and secondary data sources. The primary data was collected through comprehensive interviews with managers, while the secondary data was derived from the official websites of the banks and relevant reports. The research highlights the benefits of embracing green banking. (Tara & Kumar, 2018).

The document evaluates the importance of financial institutions and banks in promoting environmentally friendly banking practices in order to protect the planet and promote sustainability. The analysis is based on the examination of the role played by the Reserve Bank of India (RBI) in initiating green banking practices and the efforts made by the State Bank of India (SBI) to promote green banking. The research utilizes secondary data in the form of reports, articles, and websites. The study highlights the significance of implementing green banking practices (Nazareth, n.d.).

Public and private banking institutions were examined in order to gain insight into the utilization of environmentally friendly banking strategies by clients in the realm of online banking. The research employed a combination of data collection methods. First-hand data was obtained through interviews with 200 banking customers, while second-hand data was acquired from the banks' websites, as well as relevant journals and publications. The investigation unveiled that

customers encounter certain challenges when conducting transactions via mobile payment applications. The internet plays a pivotal role in promoting the adoption of sustainable banking practices (Narayanan, 2023).

The investigation furnished a more comprehensive examination of eco-friendly banking methodologies in India, highlighting their importance for the safeguarding of the environment and the promotion of sustainable advancement. Information was gathered by means of supplementary accounts (Initiatives et al., 2020).

Objectives of the Study

In the current scenario of drastic fluctuations in climate and global warming, present study becomes of utmost importance. There isn't many research on green banking in India; the current study would add to the body of knowledge previously available on the subject. The paper focuses on the initiatives taken by bank namely SBI to promote green banking as banks are required to follow green mantra in order to achieve environmental sustainability. The objectives of the paper are as follows:

To comprehend the necessity of green banking in the contemporary context.

- To investigate the initiatives pertaining to green banking that have been undertaken by SBI.
- To delve into the green products and services that are offered by financial institutions.
- To gain an understanding of the challenges encountered by banks during the implementation of green banking practices.

Research Methodology

The current investigation is characterized by its descriptive quality. Extensive examination has been conducted on the literature pertaining to green banking and sustainability. The employed data sources were of a secondary nature. An analysis of the bank's annual reports from the previous decade has been undertaken in order to ascertain information regarding the environmentally-friendly products and services provided by said banks.

Green Banking Initiatives taken by SBI (State Bank of India)

Green banking was introduced in 2009 for the first time in State of Florida. In most of the developed nations, green banks have already started at an advanced level but green banking in India is at nascent stage. The most successful business bank SBI was the first one to take a step towards achieving a greener society by taking green banking initiative.

SBI, India's biggest public sector banks was established in the year 1955. SBI serves the interest of common man, businesses, public institutions, etc. It has always worked on the principles of transparency, ethics and sustainability. Due to the persistent issue of global warming and climate change, SBI introduced green banking practices in the year 2007.

SBI has implemented the concept of the Green Remit Card, which essentially refers to a card devoid of a PIN, facilitating the transfer of funds into the recipient's account via the Green Channel Counter, eliminating the necessity of memorizing the complete bank account number(Sbi 2022-23, n.d.). In order to reduce the carbon footprint, the State Bank of India (SBI) has also introduced paperless banking through mobile Point of Sale (PoS) terminals(SBI 2017-18, n.d.-a). Additionally, the bank has introduced the green Personal Identification Number (PIN). In 2018, SBI collaborated with its Dubai branch to establish a green field project for Indian companies. Furthermore, the concept of the green marathon was initiated by the marketing and communication as well as sustainability department. As a part of their green initiative and cleanliness drive, the bank has ceased printing slips for 43 types of unsuccessful transactions. During the year 2018, the green password was launched to simplify the process for customers to self-register themselves on the digital platform. The bank has further expanded its green practices by investing in green field ventures(SBI 2017-18, n.d.-b), including arranging debt in foreign currency. It has also been consistently working since 2021 towards the welfare of various societies, such as constructing and upgrading toilets in multiple districts of Assam under their sanitation project. Moreover, the bank promotes sustainable livelihood through bamboo-based initiatives, including planting thousands of bamboo saplings in the wasteland of Maharashtra. Since 2019, the bank has been actively working towards centralizing its physical data server in virtual form to minimize the emission of greenhouse gases. Additionally, the bank has

set a goal to achieve carbon neutrality by the year 2030. SBI branches have also started shifting ATMs to solar backup power to reduce the consumption of our resources. The SBI is now among the first financial institutions in the nation to have wind turbines installed for the production of clean energy. Ten wind turbines were installed by SBI in Tamil Nadu, Maharashtra and Gujarat under its green banking policy. As of March 2023, the Indian Green Building Council has certified 32 of bank's establishments as green buildings. Additionally, the bank is utilising advantageous green tariff policies to improve the acquisition of Green Power and transition to renewable power. As of March 2023, the cumulative solar installation capacity exceeds 22 MW. In order to generate more electricity, SBI intends to deploy new wind turbines with a 20 MW capacity in a time period of about 5 years. They have also started using electric vehicles in order to lessen the carbon footprints. SBI has launched its Yono SBI app, a digital platform to provide banking products and services to its customers in one place without the need to visit the branch physically. SBI has also started Green Fund to support tree plantation, construction of bio toilets and to provide solar panels. SBI has planned the plantation of around 5 million trees in order to cope up with the devastating impact of climate change and global warming. It has also introduced green car loan and green home loan where loan for vehicles and home would be provided at a concessional rate as compared to normal loan. It has also started SBI E-Rickshaw scheme to reduce air and noise pollution. In order to enhance the environmentally friendly transportation system, the bank has collaboratively joined forces with Tata Power to establish 48 cutting edge electric vehicles charging stations at designated locations owned by the bank (Sbi 2022-23, n.d.). To emphasize its enduring dedication to promoting environmentally friendly and socially conscious initiatives, SBI finalized its most substantial inaugural Syndicated Social loan amounting to \$ 1 billion (comprised of \$ 500 million through a green shoe provision). This landmark transaction establishes itself as the foremost ESG loan obtained by a commercial bank in the Asia-Pacific market, while also claiming the distinction of being second largest social loan on a global scale. The bank utilizes these credit facilities to finance initiatives that promote a favourable impact on the environment and the society, in line with the bank's renewable energy policy guideline for the funding of renewable energy projects. The bank has also tried to address the transition risks

and it has reduced the carbon emissions by 5.72 million ton through its various green banking initiatives. To boost up the digital channel customers, the bank offers Green reward points which is redeemed to be utilized for crediting SBI Green Fund which will be proceeded for sustainable initiatives. Green bonds worth \$ 800 million have been issued since 2019 by this bank. It has also started facilitating SC, ST and women borrowers for them to settle up a greenfield enterprise in any sector be it manufacturing, service or trading sector. SBI has also started issuing their annual reports in electronic format rather than physical format to reduce paper consumption.

Green Products and Services

Online banking: The emergence of online banking, particularly through the utilization of smart phones, has resulted in a decrease in the frequency of customers' visits to physical banks. Customers now have the ability to conduct various financial transactions, such as bill payments and deposits, through their mobile devices. By providing these services online, customers are automatically able to minimize their environmental impact, specifically their carbon footprints. This comprehensive online banking system contributes to the preservation of natural resources through reduced consumption.

Green finance: Green finance, at its core, entails investing in projects that prioritize environmental consciousness and exhibit a commitment to mitigating climate change. These environmentally friendly projects are characterized by their low energy consumption, minimal greenhouse gas emissions, limited pollution, and utilization of eco-friendly technology. For example, banks have the potential to offer financial support for low carbon emission vehicles at preferential rates, ultimately fostering the development of greener initiatives.

Cards: Banks have implemented debit cards, credit cards, automated teller machines (ATMs), and other such mechanisms through their environmentally-friendly service counter (GCC). This endeavour not only maximizes the efficiency of customers by minimizing time consumption, but also contributes to the reduction of paper usage. Consequently, patrons are no longer required to familiarize themselves with the entirety of their account number; rather, they simply need to commit their card's personal identification number (PIN) to memory in order to successfully execute a transaction. These advancements undoubtedly offer a high level of convenience and rationality.

Green home loans: Building a green home refers to the construction of a residence in a manner that enhances the utilization of water, energy, and materials. This approach guarantees the absence of any adverse effects on the environment and human well-being. Consequently, green home loans are made accessible at preferential interest rates.

Challenges Faced by the Banks

1. Lack of awareness: The general populace, including bank employees, top management, and the customer base, demonstrate a lack of understanding regarding the concept of sustainable banking. A significant portion of individuals remains oblivious to the positive impact that environmentally friendly practices can have on the overall improvement of the environment.
2. Diversification Issue: Owing to their inherent nature, green banks primarily engage in business relationships with firms that have undergone thorough environmental scrutiny. Consequently, the number of customers they attract remains relatively limited.
3. Lack of skilled staff: The systematic implementation of green banking practices necessitates the presence of knowledgeable and proficient employees. It is imperative that these individuals possess specialized expertise, as the successful execution of green banking procedures can be a demanding endeavour. Unfortunately, the scarcity of skilled staff within banking institutions poses a considerable challenge to the advancement of green banking initiatives.
4. High operating cost: The effective enforcement of green banking policies requires the employment of experienced personnel. However, the recruitment of such individuals incurs substantial costs. This financial burden is attributable to the necessity of hiring experienced and proficient employees.
5. Banks are in infancy stage: The establishment of a prosperous bank necessitates a period of approximately 4-5 years. This is particularly true for green banks, as a significant number of them are currently in their initial stages of development.
6. Reputation Risk: As society becomes increasingly conscious of environmental preservation, banks face the potential risk of tarnishing their reputation if they engage in risky or environmentally hazardous projects. Such actions may have

adverse consequences on the perceived integrity of the banks involved.

Benefits of Green Banking

- **Avoids paperwork:** The utilization of online banking, debit cards, and other digital financial services reduces the reliance on paperwork. By conducting transactions online, there is a significant reduction in the need for paper, which in turn, contributes to the preservation of thousands of trees. Consequently, this environmentally-friendly approach enables banks to adopt a more sustainable and eco-conscious stance, thereby minimizing their carbon footprints.
- **Cheaper loans:** Financial institutions have implemented various measures to encourage environmentally-friendly practices by offering concessional rates on loans such as green bank loans and green vehicle loans. This initiative not only promotes the adoption of greener alternatives but also aims to incentivize individuals to embrace eco-conscious practices.
- **Awareness about Environment:** A notable outcome of green banking is the heightened awareness it generates regarding the state of the environment and the pressing issue of climate change. Through the implementation of these environmentally-friendly practices, consumers become more cognizant of the critical condition of our planet and are thus encouraged to take more proactive measures towards its preservation.
- **Avoids hazards:** An additional advantage of green banking is its ability to mitigate potential environmental hazards. By promoting sustainable practices and encouraging the adoption of eco-friendly alternatives, green banking plays a vital role in reducing the likelihood of environmental risks and hazards.

Limitations of the Study

Given the substantial advancements that this work has made, some drawbacks need to be solved for further study. There are various limitations of the study which can be covered in future researches. The present study is only confined to the one bank only, in future this study could be expanded or a comparative study could be done between the differences of practices by both public and private banks. Given the

fact that the present study is only based on a single bank, the implications are limited.

Findings and Recommendation

The anthropogenic activities that have had a devastating impact on the environment compel banks and financial institutions to assume a significant role in the preservation of the environment. They must finance projects that possess sustainability and strive to raise consumer awareness regarding the environmentally friendly products and services they provide. State Bank of India (SBI), being the largest public sector bank, has a much larger responsibility in achieving sustainability. The findings indicate that the efforts made by banks have been quite impressive. To successfully implement green banking, banks must focus on creating awareness about environmentally friendly products and services among their customers. Banks must also prioritize providing training to their employees to ensure the efficient adoption of green banking policies and procedures.

Conclusion

The atmosphere could be improved by environmentally friendly banking and the economy could be accelerated. Green banking is a concept which is totally based on sustainability. Until recently banks were not that much keen on adopting the principles of green banking but nowadays due to drastic fluctuations in climate and devastating impact of global warming, banks have started implementing such green practices. Developed nations have come quite far in green banking as compared to developing nations. India is still in the early stages of its green banking development. The industries which are taking steps to go green, banks should prefer financing these industries. This would be beneficial for both bank and the economy. In this way, banks would be able to lower their Non-performing assets (NPAs). Green Banking also enhances the reputation of banks in the eye of their clients. By implementing green banking initiatives, banks would be able to fulfil their commercial objective as well as their social objective of giving back to the society.

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Chapter 6

Sustaining Excellence: Academic Institutions in the Era of Artificial Intelligence

DR. UTKARSH MISHRA

Abstract

As the influence of artificial intelligence (AI) permeates every facet of society, the academic landscape faces significant challenges and opportunities. This paper delves into the multifaceted issues arising from the integration of AI in higher education institutions in India. Key concerns include the impact on students and faculty, the erosion of conceptual and fundamental knowledge, and the pressing need for institutional capacity building. Students grapple with the challenge of adapting to an educational environment increasingly reliant on AI tools, risking a dilution of critical thinking and problem-solving skills. Similarly, faculty members face the dual challenge of mastering AI technologies while preserving the essence of pedagogy and mentorship. The absence of a conducive brainstorming environment exacerbates the loss of conceptual depth and critical analysis skills among students. To navigate these challenges, institutions must prioritize capacity-building initiatives for faculty and equip students with the necessary skills to leverage AI responsibly. Balancing reliance on AI tools with traditional teaching methodologies is crucial to prevent over-dependence on automation. Furthermore, strategies for effectively integrating AI into the curriculum must be devised to ensure optimal learning outcomes.

This paper underscores the imperative for higher education institutions in India to proactively address the challenges posed by AI. By fostering a culture of innovation, adaptability, and continuous learning, institutions can sustain academic excellence in the era of artificial intelligence.

Keywords: Artificial Intelligence, Higher Education, Capacity Building, Pedagogy, Innovation

Introduction

Artificial Intelligence (AI) has emerged as a transformative force reshaping industries, governance, and education systems globally. Higher education, in particular, faces unique challenges in adapting to this paradigm shift. In India, where traditional education systems often emphasize rote learning and theoretical knowledge, AI integration introduces both opportunities and hurdles. While AI promises personalized learning, enhanced administrative efficiency, and innovative pedagogical tools, it also raises critical concerns regarding its impact on academic integrity, conceptual understanding, and the preparedness of both students and faculty.

This paper examines the challenges and opportunities posed by AI integration in Indian higher education. It highlights the necessity of balancing AI-driven automation with traditional pedagogical values to foster critical thinking, creativity, and problem-solving skills. Additionally, the paper emphasizes the urgent need for capacity-building initiatives to equip faculty and students with the skills required to navigate this new educational landscape effectively.

The modern educational landscape is constantly evolving. Change is an integral part of daily life and societal progression, often generating concerns and instability, which necessitate adaptability across various domains. In this context of continuous transformation, unpredictability becomes inherent, requiring consistent adjustment and flexibility.

While some values may appear immutable, the uncertainties caused by rapid change often prompt a reassessment of even the most steadfast principles. It is critical to ensure that revised values are universally accepted and acknowledged. Organizational cultures inherently foster shared values, some of which remain universally upheld, while others are subject to individual interpretation. In universities, academic culture plays a pivotal role in shaping values related to academic integrity. However, achieving a common understanding of these values becomes increasingly challenging in internationalized academic settings. Educators must proactively establish and enforce a consistent set of values around academic integrity, supported by clear institutional policies.

Despite the widespread use of AI tools in personal and educational contexts, many people lack a clear understanding of their functionality. The growing prominence of AI underscores the need for enhanced

awareness. Within the education sector, there is a rising demand to modernize teaching approaches, reevaluating both the skills targeted and the methods used for assessment. Educators now face critical decisions about the extent and form of AI integration into classrooms. Ignoring AI's potential would be a significant oversight, and failing to familiarize students with it could lead to missed opportunities. This paper advocates for a regulated, informed, and supportive integration of AI in education, stressing the importance of clear ethical guidelines to ensure its responsible use. The inclusion of AI must align with the highest ethical standards to protect the integrity of the learning environment.

Given AI's rapid evolution, statements made today may quickly become outdated. Thus, this paper serves as a snapshot of the current moment, offering observations and conclusions that require regular updates to remain relevant in an ever-changing AI landscape.

Universities display varied approaches to AI, ranging from full integration to complete avoidance. The complexity of these approaches, coupled with regulatory uncertainties, creates significant challenges. Ethical considerations are paramount in implementing AI within academic contexts. Regulations regarding AI often vary across institutional, departmental, and curricular levels, leaving students unsure about reconciling conflicting values and rules. A lack of regulatory frameworks exacerbates this confusion, depriving students of essential guidance. Clear and cohesive directives are essential to harmonize these regulations while preserving long-established values.

Understanding students' perspectives on AI is vital to formulating effective regulations that uphold academic integrity. Moving forward, universities must continue fostering values and safeguarding academic integrity amid these rapid changes.

Review of Literature

Chan and Hu (2023) provide valuable insights into the role of AI in higher education, focusing on how it supports learning processes. While their study places less emphasis on ethical issues, it highlights students' attitudes toward AI. Adopting a structured research approach, they observed a mix of optimism and caution among students. Many students recognized AI's potential to revolutionize education, particularly through personalized learning, but expressed concerns about over-reliance, accuracy, and privacy. Notably, even those with

extensive knowledge of AI remained apprehensive about these challenges. The study underscores the importance of addressing such perceptions to ensure the thoughtful integration of AI into higher education.

Similarly, Peres et al. (2023) advocate for forward-thinking integration of AI into pedagogy, highlighting its parallels to the adoption of statistical software in education. They call for a shift from traditional methodological teaching to equipping students with practical skills such as prompt engineering, critical evaluation of AI outputs, and understanding AI's limitations. Their findings emphasize the need to prepare students for an AI-driven academic environment while ensuring its responsible and ethical use.

These studies reveal the transformative potential of AI in higher education, while also emphasizing its challenges and ethical implications. The development of comprehensive guidelines is critical for the ethical deployment of AI. Given the rapid advancements in technology, educators and students alike must stay informed to avoid falling behind. Despite the appeal of AI, the irreplaceable human elements of education, such as creativity, empathy, and cultural transmission, must be preserved. A balanced, ethical, and well-informed approach is essential to integrating AI into higher education effectively.

The growing body of research on academic integrity in the context of AI highlights its complexity. While opinions differ on how AI should be integrated into academia, there is broad consensus on the need for clear and transparent regulations. Policy documents, such as the European Parliament's 2021 report, stress the ethical implementation of AI in education, rooted in fundamental ethical principles. Similarly, the European Commission's 2022 strategy emphasizes advancing AI with excellence and trust, prioritizing human welfare and fundamental rights.

UNESCO's recent report by Sabzalieva and Valentini (2023) highlights the urgency for Higher Education Institutions (HEIs) to revisit and refine their policies concerning AI. The report specifically addresses the ethical implications of tools like Generative Pre-trained Transformers (GPTs), which are increasingly integrated into search engines, word processing software, and other academic tools. This

widespread adoption necessitates a robust dialogue on AI's role in daily academic activities.

Holmes et al. (2021) argue that regulating AI in education should extend beyond preventing misuse to providing comprehensive guidance that balances its benefits and risks. They emphasize the importance of clear policies that ensure positive outcomes for all stakeholders, including students, educators, and society.

Chan (2023) traces the history of AI in education, noting its innovations in personalized learning tools and administrative systems while also pointing out concerns about equitable access, curriculum changes, and the evolving role of educators. Current policies often prioritize AI's use for workforce training over its broader educational potential, underscoring the need for balanced approaches that address both ethical and educational dimensions.

Eke (2023) discusses the implications of tools like ChatGPT, emphasizing the need to align academic ethics with technological advancements. While these tools offer significant potential, their unregulated use could compromise fundamental principles of academic integrity. Eke calls for robust collaboration between academic institutions and AI developers to safeguard these values.

Farrokhnia et al. (2023) conducted a SWOT analysis of AI in education, identifying risks to academic integrity as a major concern. The study highlights challenges such as examination malpractice, particularly in the context of online exams where AI can generate highly confident and accurate responses to test queries.

Sullivan et al. (2023), in their analysis of media discourse, observe that conversations around ChatGPT in higher education often center on concerns about academic integrity and innovative assessment methodologies. However, they note a lack of focus on students' perspectives, despite their central role in this discourse. Their study seeks to bridge this gap by examining the implications of AI tools on academic integrity from the students' viewpoint.

The research reviewed highlights the challenges of integrating AI while maintaining academic integrity. Key policy documents emphasize the ethical deployment of AI in education, calling for transparent guidelines and proactive regulation. The rapid adoption of tools like GPT underscores the need for ongoing discussions about their implications. Institutions must prioritize the creation of strong

frameworks that balance AI's transformative potential with its inherent risks, always ensuring that academic integrity remains central to these efforts.

The integration of AI in education has been widely studied in global contexts. According to LeBlanc (2018), higher education must innovate and adapt to remain relevant in a VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) world. AI technologies, such as intelligent tutoring systems, adaptive learning platforms, and automated grading tools, have been lauded for their potential to enhance educational outcomes (Chan, 2023). However, these advancements come with ethical and pedagogical concerns, particularly in developing countries like India.

Methodology

This study adopts a secondary research methodology, analyzing existing literature, policy documents, and case studies related to AI integration in higher education. By synthesizing insights from global and Indian contexts, the paper identifies key challenges and opportunities and provides actionable recommendations for stakeholders in Indian higher education.

Research Objective

To explore the challenges and opportunities posed by the integration of artificial intelligence in Indian higher education, focusing on its impact on students and faculty, the erosion of critical thinking and conceptual understanding, and the strategies needed institutional capacity building to sustain academic excellence.

Research Questions

- How does the integration of AI impact students' critical thinking and problem-solving skills in Indian higher education?
- What challenges do faculty members face in adopting AI technologies while maintaining traditional pedagogical values?
- What capacity-building initiatives are required to equip faculty and students for effective and ethical use of AI in higher education?
- How can institutions balance reliance on AI tools with traditional teaching methodologies to ensure optimal learning outcomes?

Challenges for Students and Faculty

Baran and Woznyj (2021) argue that the unpredictability of AI technologies creates challenges for both students and educators. Students risk becoming overly dependent on AI tools, which may dilute their critical thinking and analytical abilities (Peres et al., 2023). Faculty members, on the other hand, face the dual responsibility of mastering these technologies while maintaining the human-centric elements of teaching, such as mentorship and moral guidance (Sabzalieva & Valentini, 2023).

Hadar et al. (2020) emphasize the importance of institutional capacity building to integrate AI effectively. Educational institutions must invest in training programs, infrastructure, and curriculum redesign to align with the demands of an AI-driven academic ecosystem. Furthermore, policies and guidelines are essential to ensure the ethical and responsible use of AI in education (Holmes et al., 2021).

In India, the challenges are amplified due to systemic issues such as unequal access to technology, inadequate digital literacy, and a lack of institutional preparedness (Laukkonen et al., 2019). The National Education Policy (NEP) 2020 acknowledges the need for integrating technology into education but does not fully address the complexities of AI adoption in higher education.

Impact on Students

1. **Erosion of Critical Thinking:** As students increasingly rely on AI tools for tasks such as research, writing, and problem-solving, there is a risk of diminishing their capacity for independent thought and analysis. Tools like ChatGPT, while offering quick answers, may discourage deeper inquiry and reflection.
2. **Digital Divide:** Unequal access to AI technologies exacerbates existing disparities in the Indian education system. Students from underprivileged backgrounds may struggle to compete with their peers who have better access to digital resources

Challenges for Faculty

1. **Skill Development:** Faculty members often lack the technical expertise required to integrate AI tools effectively into their teaching practices. This knowledge gap hinders their ability to harness AI's potential while maintaining pedagogical integrity.

2. **Balancing Roles:** Educators must juggle their roles as mentors, evaluators, and facilitators of AI-driven learning environments. Striking this balance can be challenging, particularly in the absence of adequate training and institutional support.
3. **Infrastructure Gaps:** Many Indian higher education institutions lack the technological infrastructure necessary for AI integration. From high-speed internet to advanced computing facilities, significant investments are required to bridge these gaps.
4. **Policy and Guidelines:** The absence of clear guidelines on AI usage in education creates ambiguity for institutions. Ethical concerns, such as academic dishonesty facilitated by AI, remain largely unaddressed.

Opportunities Presented by AI

1. **Personalized Learning** - AI enables adaptive learning platforms that cater to individual student needs. By analyzing data on student performance, these platforms can provide customized learning experiences, improving engagement and outcomes.
2. **Efficiency in Administrative Tasks** - AI can streamline administrative processes such as admissions, scheduling, and grading, allowing faculty and staff to focus on more strategic and academic responsibilities.
3. **Enhancing Research Capabilities** - AI tools can assist in data analysis, literature reviews, and predictive modeling, thereby accelerating the pace of academic research. This is particularly beneficial for Indian institutions seeking to enhance their global research output.
4. **Global Competitiveness** - By embracing AI, Indian higher education institutions can align with global trends, making their graduates more competitive in the international job market.

The analysis reveals that over-reliance on AI tools risks undermining traditional teaching methodologies that emphasize conceptual understanding, critical thinking, and human interaction. Institutions must strike a balance by integrating AI into the curriculum while preserving the core values of education.

Capacity building emerges as a recurring theme in the literature. Faculty training programs, workshops, and collaborative initiatives with AI experts are essential to equip educators with the skills needed to navigate this transition. Similarly, students must be educated on the

ethical use of AI, fostering a culture of accountability and responsible innovation.

lear policies and ethical guidelines are crucial to address challenges such as academic dishonesty, data privacy, and accessibility. Regulatory frameworks should be developed in consultation with stakeholders, including educators, policymakers, and technology developers.

Recommendations

- Universities should invest in training programs to help faculty integrate AI into their teaching practices effectively.
- Workshops and seminars on the ethical use of AI can educate students about its responsible application.
- Institutions must prioritize investments in technology infrastructure to support AI integration.
- The curriculum should be updated to include AI literacy, critical thinking, and problem-solving skills.
- Stakeholders should collaborate to develop comprehensive guidelines that address ethical and practical concerns related to AI in education.

Conclusion

The integration of artificial intelligence into Indian higher education presents both significant challenges and opportunities. While AI offers transformative potential for personalized learning, administrative efficiency, and global competitiveness, it also raises concerns about critical thinking, ethical use, and institutional readiness. To navigate these complexities, Indian higher education institutions must adopt a balanced approach that combines the strengths of AI with traditional pedagogical values.

By fostering a culture of innovation, adaptability, and continuous learning, institutions can ensure that the benefits of AI are maximized while mitigating its risks. Through strategic investments in capacity building, infrastructure, and policy development, Indian higher education can sustain academic excellence in the age of artificial intelligence.

This study explored the transformative impact of generative AI on academia, focusing on students' experiences and perspectives. By examining the intersection of academic values and AI integration, the

research shed light on the evolving educational landscape shaped by this technology.

The volatility of the current academic environment is evident in the rapid adoption of AI, which has disrupted traditional practices and raised ethical concerns about its misuse. The uncertainty stems from students' mixed feelings, as they recognize AI's benefits but also fear issues like misinformation, reduced creativity, and inherent biases. The complexity is reflected in the dual challenges of simplifying tasks and managing unpredictable outcomes, particularly in ensuring fairness and transparency. Finally, the ambiguity is illustrated by the varied perceptions of AI's role in academia, highlighting the urgent need for clear guidelines and ethical standards.

The study emphasizes the necessity of a balanced approach to AI integration—one that maximizes its benefits while addressing its risks. Students acknowledged the efficiency and innovation AI brings but expressed concerns about its ethical implications and potential to compromise academic values. These insights align with existing literature (e.g., Firat, 2023; Rudolph et al., 2023a) and policy guidelines (e.g., Atlas, 2023; Gimpel et al., 2023; Sabzalieva & Valentini, 2023), which stress the importance of clear frameworks for AI's ethical use in education.

This research reinforces the need for collaboration among educators, technologists, and policymakers to create effective policies and ethical standards for AI integration. Such cooperation is vital to foster a value-driven educational system that leverages AI's potential while preserving fundamental academic principles. Educators have a critical role in balancing advanced technology with ethical teaching practices, ensuring that AI's inclusion enhances learning without undermining integrity.

AI's impact may vary between disciplines, with greater utility in the hard sciences and potential challenges in interpretative fields like business and social sciences. Future research should explore larger, multidisciplinary samples to gain broader insights into students' attitudes and usage of AI tools. These findings can inform curriculum development, helping educators identify areas where students need support and integrate traditional teaching methods with AI-based innovations effectively.

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Chapter 7

A Parametric Study of Renewable Energy Consumption and Carbon Emission in Indian Context

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Abstract

Climate change has occurred as an established phenomenon with paramount ecological effects. Being the third largest emitter of carbon emission, India is among the first developing nation to have set the carbon neutrality target to combat climate change. In the realm of its burgeoning population and rising energy demand, the reliance on renewable energy is vital and has become a necessity. The present study digs deeper into the analysis of renewable energy parameters for the period spanning from 1990 to 2020. It reveals certain ups and downs in REC, a continuous increase in carbon emission, and a reduction in energy intensity over the period of 2000 to 2020. However, it is quite clear that the percentage of renewable electricity production is more or less increasing which signals a 'greener electricity'. Moreover, there is continuous increase in carbon intensity over the years denoting increasing overall emission of carbon dioxide and other greenhouse gases per unit of energy use. But an increasing GDP/EU reflects energy efficiency. The paper paves a way for policymakers to implement more sustainable use of non-fossilized energy and to provide better incentives for its development.

Keywords: Renewable energy consumption, renewable electricity output, carbon intensity, energy intensity, India

Introduction

Climate change has occurred as an established phenomenon with paramount ecological effects. The onset of twenty-first century has marked its potential consequences round the globe on both physical and social environment. Due to burgeoning population and ever-increasing developmental process, the demand for energy is inevitable. In this realm, fossils contribute a bigger chunk of requirement which ultimately culminates into an unaffordable pollution level. In addition,

the rise in global temperature fuels up the process of glacial transformation, inundation and various ecological disturbances. To minimize the warming rate to 1.5 degree Celsius will bid a quick, extensive and significant adjustment in various interlinked systems, including energy, carbon emission, economic development, and several other factors. The 26th Conference of Parties and Paris Agreement lags behind the estimated schedule for implementing various strategies outlined (Yu et al., 2022). It commands further explorations by environmental scientists, policymakers and governments to examine as to what contributes more towards zero carbon emission transition.

India, the world's third largest emitter of GHGs after USA and China, is also vulnerable to climate change. CO₂ is found as one of the most vital contributing factors to environmental deterioration. To keep up with economic growth and growing population, developing nations like, India is flooding with higher concentration of pollutants which are having its negative effects on environment and health. Therefore, the focus and reliance on renewable energy is vital and has become a necessity in the realm of rising energy demand.

In the wake of energy and oil crisis of 1970s, the countries around the world were forced to switch to non – fossilized energy sources (Suresh et al, 2022). The threatening effect of global warming and climate change accelerated the pace of these efforts. India, being the third largest consumer of oil and electricity, commenced on developing and installing renewable energy projects in the 1980s. It is interesting to emphasize that India is among the first developing nation to set forth for itself a carbon neutrality target. This illustrates the nation as a prominent voice for other developing nations as well in the domain of climate action. According to Addai et al (2022), the predicted energy demand will escalate by around 90 percent by 2035. Notably, India's allegiance and urge towards climate change alleviation is becoming more flagrant through its energy efficiency viewpoint.

Suresh et al. (2021) delved into depth to gain insights into the position of India in the renewable energy sector and its evolution over the period of time. Since, India has set an intimidating target of 450 GW capacity installation by 2030 to demonstrate its commitment towards sustainable development. Currently, India stands at the fourth position among the world leaders in terms of total installed capacity of renewables. According to Negi and Mathew (2014), the sources of

renewable energy and their application in electric mobility are popularly considered as the critical measures to reduce greenhouse gas (GHG) concentration.

In an effort to cultivate a cleaner environment, India has set an enthusiastic target of net zero carbon emission by 2070 during 26th CoP at Glasgow in United Kingdom in 2021. In its drive towards carbon neutrality, India walked towards the five crucial elements for climate action popularly called as ‘Panchamrit’ by Prime Minister Narendra Modi during the event. It includes: i) the promise to attain 500GW non-fossil energy capacity, ii) ensure 50 percent of energy requirements from renewable energy sources by 2030, iii) commitment to reduce carbon emission by 1 billion tonnes (bt) by 2030, iv) set out programmes to reduce carbon intensity by 45 percent by 20230, and v) to fulfil the net zero carbon emission target by 2070. Hence, this paper seeks to roll out the factors that can help in achieving the goal of aforesaid target.

India has recently launched Lifestyle for Environment (LIFE) programme which seeks to promote lifestyles that could ensure sustainable environment in India and at the global platform (Uche). The blend of this action along with other energy transition protocols and agendas, it is expected that there will be appreciable decline in global carbon emission by around 2 billion tonnes (Gt) by 2030 (Uche et al., 2023). Furthermore, the profile of carbon emission of India depicts that its energy efficiency needs to be doubled.

Figure 1: Drivers of CO₂ Emissions in India; Source: Our World in Data

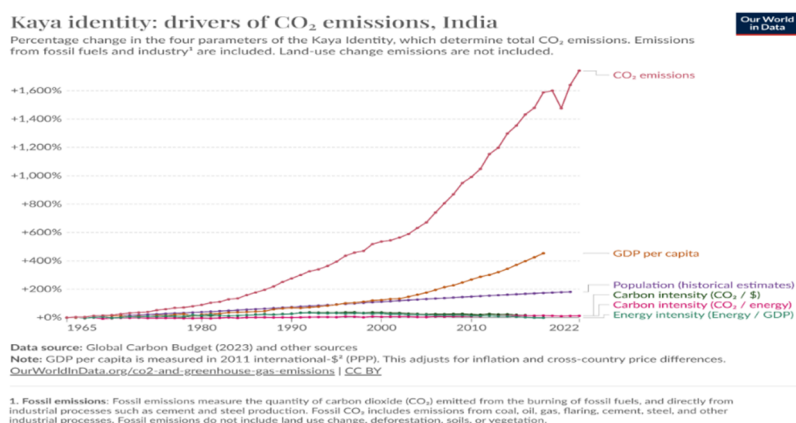


Figure 1 reveals the percentage change in the four parameters of Kaya identity which determines total carbon emissions. It also includes emission from fossil fuels and industry. The importance of Kaya identity variables has been highlighted in various studies. The present study also takes into account the variables like carbon emission, carbon intensity, and energy intensity for the analysis. The figure shows an increasing trend in CO₂ emissions touching its height. The GDP per capita and population is also continuously increasing at a decreasing rate. However, carbon intensity and energy intensity mark a notable reduction in the recent years. Figure 2 depicts the break – up of renewable energy generation which consists of hydropower, solar, wind, and other renewables including bioenergy. Hydropower contributes highest in the renewable electricity generation from 1965 to 2022. In the year 2022, hydropower contributes above 160TWh, followed by solar at about 100TWh, wind at 40TWh and others at 40TWh. Figure 3 depicts the India’s share of primary energy consumption from renewable energy sources over the years. In the year 2022, India’s share of primary energy consumption from renewable sources stands at around 10.5 percent, showing an almost increasing trend over the last ten years.

Figure 2: Renewable Energy Generation; Source: Our World in Data

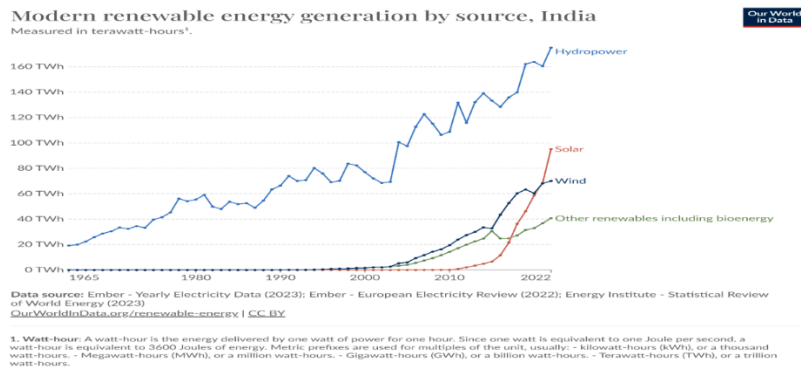
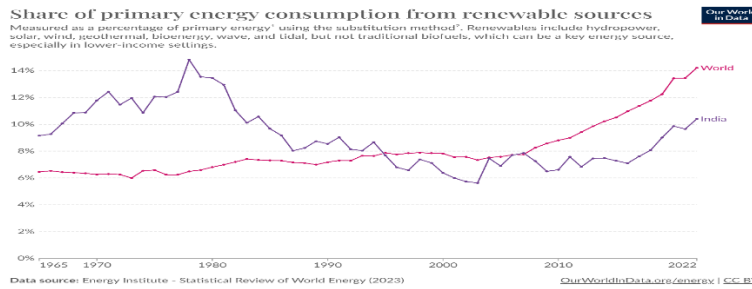


Figure 3: Share of primary energy consumption from renewable sources; Source: Our World in Data



1. **Primary energy:** Primary energy is the energy available as resources – such as the fuels burnt in power plants – before it has been transformed. This relates to the coal before it has been burned, the uranium, or the barrels of oil. Primary energy includes energy that the end user needs, in the form of electricity, transport and heating, plus inefficiencies and energy that is lost when raw resources are transformed into a usable form. You can read more on the different ways of measuring energy in our article.

2. **Substitution method:** The 'substitution method' is used by researchers to correct primary energy consumption for efficiency losses experienced by fossil fuels. It tries to adjust non-fossil energy sources to the inputs that would be needed if it was generated from fossil fuels. It assumes that wind and solar electricity is as inefficient as coal or gas. To do this, energy generation from non-fossil sources are divided by a standard 'thermal efficiency factor' – typically around 0.4. Nuclear power is also adjusted despite it also experiencing thermal losses in a power plant. Since it's reported in terms of electricity output, we need to do this adjustment to calculate its equivalent input value. You can read more about this adjustment in our article.

Data and Methodology

The study is entirely based on secondary time series data extracted from World Development Indicator. MS Excel is utilized for the analysis and graphical representation of data sets. To investigate the relationship between the variables, this section is divided into two parts. Table 1 explicitly shows the description of variables chosen for analysis in the study. Due to non-availability of data for some variables in recent years, the study has been bifurcated into two halves. For the first part annual time series data has been extracted for the year 1990 to 2014. It takes into account the variables like, renewable energy consumption as percentage of total energy consumption, renewable electricity output as a percentage of total electricity output, log of carbon emission in kilo tonne, and energy intensity. Table 2 contains the data set for the analysis of first section.

Table 1: Variables Description

Variables	Description	Code
Renewable Energy Consumption	Renewable energy consumption (% of total final energy consumption) [EG.FEC.RNEW.ZS]	RE C
Renewable Electricity Output	Renewable electricity output (% of total electricity output) [EG.ELC.RNEW.ZS]	TE O

Carbon Emission	CO2 emissions (kt) [EN.ATM.CO2E.KT]	CE
CO2 Emission	Log of CO2 emissions (kt) [EN.ATM.CO2E.KT]	LC O2
Carbon Intensity	CO2 intensity (kg per kg of oil equivalent energy use)	CI
Energy Intensity	Energy intensity level of primary energy (MJ/\$2017 PPP GDP) [EG.EGY.PRIM.PP.KD]	EI
GDP per unit of Energy Use	GDP per unit of energy use (constant 2017 PPP \$ per kg of oil equivalent)	GD P/E I

Table 2: REC (%TEC), REO (%TEO) & LCO₂ from 2000 to 2020

YEAR	REC (%TEC)	REO (%TEO)	LCO ₂ (kt)	EI
2000	46.88	13.59	5.9721	6.42
2001	47.11	13.21	5.9793	6.22
2002	45.75	12.06	5.9936	6.16
2003	45.63	13.47	6.0051	5.84
2004	44.92	14.48	6.0357	5.73
2005	44.16	16.62	6.0556	5.52
2006	43.16	17.54	6.0846	5.39
2007	41.54	17.86	6.1260	5.31
2008	39.38	16.51	6.1536	5.43
2009	37.41	15.66	6.1945	5.50
2010	36.16	16.04	6.2201	5.34
2011	35.01	17.32	6.2447	5.28
2012	34.75	15.73	6.2809	5.29

2013	34.86	17.35	6.2950	5.11
2014	33.85	16.25	6.3319	5.08
2015	33.4	15.34	6.3341	4.82
2016	33.01		6.3415	4.54
2017	32.57		6.3634	4.46
2018	32.73		6.3906	4.40
2019	33.27		6.3845	4.25
2020	35.82		6.3426	4.28

Source: World Development Indicator

3.2 The second section deals with the analysis of renewable energy consumption (REC) as a percentage of total energy consumption, carbon intensity, and GDP per unit of energy use for the year 1990 to 2014. Table reveals the data set for the same variables.

Table 3: REC, CO₂I, and GDP/EU from 1990 - 2014

YEAR	REC	CO ₂ I	GDP/EU
1990	52.95	1.84	5.18
1991	52.00	1.91	5.02
1992	51.46	1.91	5.11
1993	51.49	1.93	5.23
1994	50.49	1.96	5.37
1995	49.54	2.00	5.46
1996	49.13	2.03	5.70
1997	47.89	2.07	5.71
1998	47.95	2.06	5.92
1999	47.11	2.10	6.09
2000	46.88	2.13	6.18

2001	47.11	2.13	6.39
2002	45.75	2.14	6.44
2003	45.63	2.15	6.78
2004	44.92	2.19	6.95
2005	44.16	2.20	7.22
2006	43.16	2.24	7.41
2007	41.54	2.33	7.55
2008	39.38	2.36	7.42
2009	37.41	2.37	7.26
2010	36.16	2.40	7.54
2011	35.01	2.44	7.61
2012	34.75	2.52	7.65
2013	34.86	2.53	7.95
2014	33.85	2.59	8.04

Source: World Development Indicator

4. Results and Discussion

In this section, we will discuss the analysis of the variables mentioned in Table 2. The first analysis is depicted in figure 4 showing a decline in renewable energy consumption from 2000 onwards and then a pickup since 2018. As for renewable electricity output the data shows a variation between around 12 percent to 17 percent during the year 2000 to 2015. However, it is quite clear that the percentage of renewable electricity production is more or less increasing which signals a greener electricity. Further, figure 5 depicts certain ups and downs in REC, a continuous increase in carbon emission, and a reduction in energy intensity over the period of 2000 to 2020.

Figure 4: REC & REO

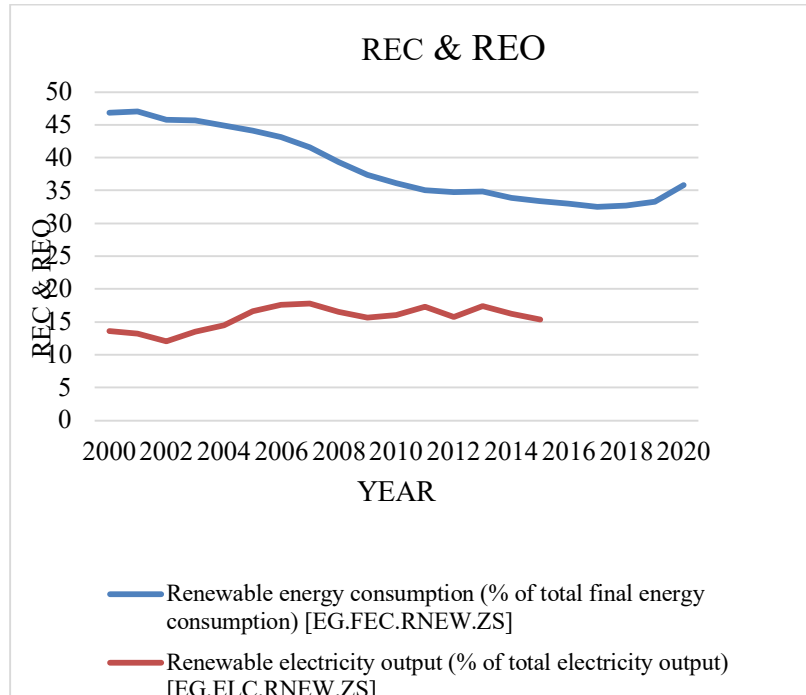


Figure 5: REC, CO2 & EI

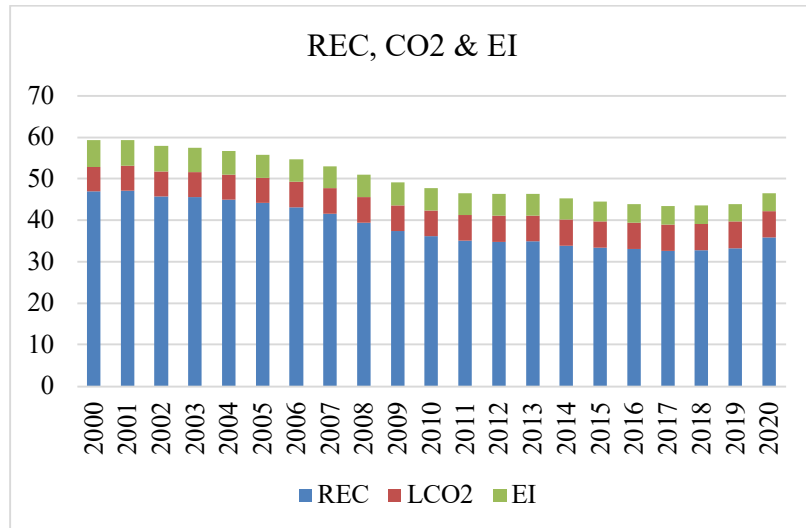
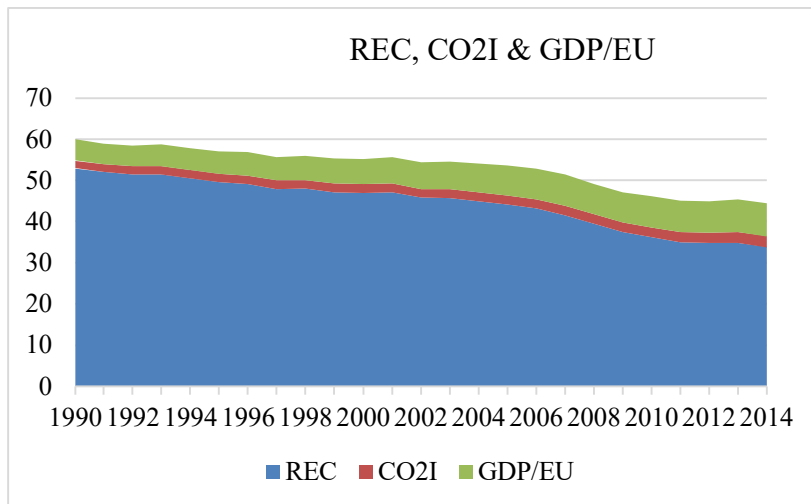


Table 4: Descriptive Statistics

	REC	CO2I	GDP/EU
Sum	1110.58	54.5287	163.179
Average	44.4232	2.18115	6.52717
Median	45.75	2.14409	6.43651
Max	52.95	2.59095	8.03779
Min	33.85	1.83989	5.0237
Std	6.12852	0.2129	0.99867
Skew	-0.4915	0.3422	-0.0779
Kurt	-1.0712	-0.8335	-1.4963

Source: Author's Calculation

Figure 6: REC, CO2I & GDP/EU

The second section of the analysis is based on the data set of Table 3. The descriptive statistics of the three variables - renewable energy consumption (REC), CO2 intensity, and GDP per unit of energy use - is shown in Table 4. It is observed that REC holds the highest mean value, indicating a larger average return as compared to other

variables, while CO₂ intensity records the lowest mean value. REC and GDP/EU shows negative skewness, denoting an asymmetry in the distribution with longer tails towards left, whereas in CO₂I, the longer tail is to the right (Afjal, 2023). Further, the negative value of kurtosis across all the variables denotes platykurtic distribution, which means a ‘flatter peak’ and ‘thinner tails’ compared to a normal distribution. It simply means that more data values are located near the mean and lesser data values are located on the tails. The standard deviation shows the variation in data around mean. It is highest in REC, whereas it is quite low in CO₂I and GP/EU. The figure 6 reveals that REC declines as a percentage of total energy consumption but it increases from 2018 onwards. Moreover, there is continuous increase in carbon intensity over the years denoting increasing overall emission of carbon dioxide and other greenhouse gases per unit of energy use. However, GDP/EU which is a measure of energy efficiency is increasing over the years.

Conclusion & Policy Implications

The paper attempted to look into the potential of energy efficiency in India in its drive towards carbon neutrality. It can be concluded from the study that over the period of 1990 to 2020, there has been variation in REC as a % of TEC, but it marked an increase in more recent years. Energy intensity and GDP/EU reflects an increase in energy efficiency. An increase in proportion of renewable energy consumption and more sustainable practices can lead to reduction in climatic risks. Production of more green and clean electricity will result into reduction in carbon intensity. The paper paves a way for policymakers to implement more sustainable use of non-fossilized energy and to provide better incentives for its development.

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Chapter 8

Impact of Artificial Intelligence in Promoting Healthy Lifestyle Choices through Integrating Psychosocial and Ergonomic Strategies

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Abstract

AI has emerged as a powerful tool in healthcare and wellbeing in recent years. This research examines how AI might improve healthy lifestyles through psychological and ergonomic tactics. AI can enable people to make health and well-being decisions. This study examines how AI might comprehend human behaviour and preferences to encourage healthy lifestyles using psychological concepts. It also studies how AI might improve ergonomic interventions by evaluating user-technology interactions and proposing customized solutions. AI-driven solutions can provide individualized recommendations, behaviour tracking, and intervention tactics to help people develop and maintain healthy behaviours using psychological insights and ergonomic design. AI-powered platforms may empower communities through community involvement, social support, and shared accountability. This paper explores AI applications like intelligent coaching, individualized health monitoring, and social networking. It also discusses ethics, privacy, and user-centered design in AI-driven social empowerment solutions. This article uses AI, psychology, and ergonomics to offer new ways to encourage healthy lifestyles and empower people to live better, more fulfilled lives. AI can help create a healthier, more resilient society through cross-disciplinary collaboration.

Keywords: Artificial intelligence, psychology, ergonomics, health, well-being

Introduction

AI in healthcare will improve medical science and patient care by improving diagnostic accuracy, therapeutic efficacy, and patient engagement (Smith & Doe, 2023). As machine learning, NLP, and

robotics grow more common in healthcare, understanding their psychological and ergonomic effects is crucial (Johnson, 2022; Lee et al., 2023). This study discusses the progress of AI in healthcare and the need for psychological and ergonomic considerations to incorporate these technologies into health systems and be well welcomed by clinicians and patients (Davis, 2021; Patel & Kumar, 2024). The significance of AI in healthcare cannot be overstated, with applications ranging from predictive analytics to robotic surgery, offering the potential to significantly improve outcomes and efficiency (Greenwood, 2022; Harper & Zheng, 2023). However, the successful adoption of AI technologies requires more than just technical innovation (O'Neill, 2022). Psychological factors, including trust in AI and the impact of AI on patient-provider relationships, play a crucial role in the acceptance and utilization of these technologies (Khan & Lima, 2023). Similarly, ergonomic considerations, such as the design of AI systems and their integration into healthcare workflows, are vital for ensuring that these technologies enhance, rather than hinder, the user experience (Meyer, 2022).

This paper aims to provide a comprehensive overview of the role of AI in healthcare, with a focus on the often-overlooked psychological and ergonomic aspects that are critical to its successful implementation. By examining these factors, we seek to offer insights into how AI can be better designed and utilized to improve healthcare delivery and outcomes.

Systematic Reviews of Last Fifteen Years

The literature review from 2011 onwards delves into the confluence of AI with psychological and ergonomic considerations, highlighting their importance in enhancing health and wellbeing through technological advancements.

Haukkal et.al., (2011) studied on” mental stress and psychosocial factors at working relation to multiple site musculoskeletal pain: A longitudinal study of kitchen workers”. In their research study they found that a cumulative progress in which adverse psychosocial factors and MSP influence each other. They concluded that the several psychosocial factors predicted MSP and that MSP predicted several psychosocial factors.

Lakshmi et al (2012), Conducted a study on “Analysis Of Work Life Balance Of Female Nurses In Hospitals-Comparative Study Between

Government And Private Hospital In Chennai, Tn., India” Study findings revealed that majority of nurses were working through-out week & 53% were struggling to achieve work-life balance. Nurses reported that shouldering multiple responsibilities at work and home was as good as a juggling act. The status of nurses needs to be reviewed by the management of government as well as private hospitals. Supportive environment can help women to achieve proper work life balance.

Farquharson et al., (2013) conducted a study on “Nursing Stress And Patient Care: Real-Time Investigation Of The Effect Of Nursing Tasks And Demands On Psychological Stress, Physiological Stress, And Job Performance” In their study, they found the effect of nursing tasks and physiological demands and the moderating effects of reward on distress and job performance in real-time. Nurses working in hospital settings reported high levels of occupational stress. The results informed theoretical understanding of nurse’s stress and its determinants and suggested possible targets for intervention to reduce stress and associated harmful consequences.

Rawal And Pardeshi (2014), Conducted A Study On “Job Stress Causes Attrition Among Nurses In Public And Private Hospitals” They examined stress among 850 nurses working in selected public hospitals and private hospitals in Pune, Maharashtra. Findings revealed that interpersonal relationships issues such as conflicts with patients, doctors, and colleagues frequently leads undesirable personal stress in the working environment

Botha, Gwin, and Purpora C (2015), Conducted A Study On “The Effectiveness Of Mindfulness Based Programs In Reducing Stress Experienced By Nurses In Adult Hospital Settings: A Systematic Review Of Quantitative Evidence Protocol” They studied The effectiveness of mindfulness based programs in reducing stress experienced by nurses in adult hospital settings: a systematic review of quantitative evidence protocol. a significant reduction in stress when the treatment and control groups were compared. However, there have been limited studies to date that focused specifically on the effectiveness of mindfulness programs to reduce stress experienced by nurses. In addition to stress reduction, mindfulness based interventions can also enhance nurses' capacity for focused attention and concentration by increasing present moment awareness. Mindfulness

techniques can be applied in everyday situations as well as stressful situations.

Dave et al., (July 2016) studied the “A Review of Literature on Employees' Job Satisfaction and Contentment”. This review article reviews research articles, related research papers, theses, and organizational reports, according to their investigation. The author studied about 16 research articles, papers, theses, or organizational reports from around the world to comprehend academic and industrial employee job satisfaction. The study shows that employee job happiness and contentment are vital for organizational development, productivity, dedication, work quality, and more. Job happiness has been studied in several ways, encompassing many aspects.

Fernandes, and Nirmala (2017), Conducted A Study On “Workplace Stress and Coping Strategies Among Indian Nurses: Literature Review” Nursing is dynamic and affected by medical and technical advances, but "care" remains the same. job environment is important now, and businesses want to know how stress and burnout affect nurses' job, health, and life. To prevent health problems and nurse turnover, stressful situations and early indicators of burnout have been identified. The WHO predicts a 2020 nursing shortage in India. This paper will review recent literature on occupational stress and nurse coping mechanisms in India. Researchers sought to identify research gaps and guide future research.

Timoti et al., (2020) studied the “Motivation & Employee Productivity”. They observed that employee motivation affects corporate efficiency and explored how motivational theories can boost productivity. The findings showed that diverse theories and ways can motivate employees and boost productivity. Financial and non-financial rewards are crucial to employee motivation.

Kumari et al., (2021) studied the “Job Satisfaction of the Employees at the Workplace”. Job satisfaction was measured at NTPC Ltd.'s Badarpur thermal power facility in terms of culture, leadership communication, dedication, job content, training, rewards and recognition, teamwork, superior-subordinate interaction, and delegating. In descriptive research, surveys and inquiries are used. Interviews, surveys, and observations collect data. Sampling is random. Selected 125 employees from 248 research participants. Company manuals, employee handbooks, BTPS intranet, and website

provided secondary data. Two months were spent researching. Analysts utilized SPSS to assess parameter satisfaction. Overall job satisfaction showed people were happy but could improve.

AI Innovations in Health and Wellbeing

The landscape of AI applications in healthcare is vast, encompassing diagnostic algorithms, treatment recommendation systems, health monitoring devices, and wellness applications. Johnson et al. (2022) note that machine learning models have the capability to analyze large datasets to identify patterns and predict health outcomes, significantly improving diagnostic accuracy and treatment personalization. Furthermore, Davis and Taylor (2023) underscore the role of natural language processing (NLP) in facilitating natural interactions between humans and machines, enabling the development of AI-powered mental health therapies and health information systems.

Psychological Insights in AI Health Applications

Integrating psychological principles into AI health applications is paramount for engaging users and promoting positive health behaviours. Williams and Patel (2024) emphasize the importance of understanding user psychology, including motivations, perceptions, and barriers to technology adoption, in designing AI systems that users trust and feel motivated to use regularly. This approach is informed by behavioural psychology, which aids in the development of personalized health interventions adaptable to the individual's changing needs and contexts.

Ergonomics and User-Centered Design in AI Health Technologies

Ergonomics plays a crucial role in the design of AI health technologies, ensuring they are accessible, user-friendly, and tailored to meet diverse user needs. Brown and Green (2023) highlight how ergonomic principles guide the optimization of user interfaces and interactions, minimizing physical discomfort and cognitive overload to enhance the overall user experience. This aspect is particularly vital in wearable health devices and assistive technologies, where ease of use and comfort are paramount.

Method

The methodology employed in this literature review aimed to systematically explore the integration of artificial intelligence (AI) in healthcare, focusing particularly on psychological and ergonomic

considerations. To achieve this, a comprehensive search strategy was developed, targeting peer-reviewed articles, conference proceedings, and expert opinions published within the last fifteen years. The databases searched included PubMed, IEEE Xplore, PsycINFO, and ACM Digital Library, utilizing keywords such as "artificial intelligence in healthcare," "psychological considerations in AI," "ergonomics in healthcare technology," and "AI user experience in health." The search was restricted to documents published in English to maintain consistency in data analysis.

Discussion

Psychological insights are essential to healthcare AI acceptance and efficacy. Haukkal et al. (2011) believe that organizations must address both psychological and physical health due to the complex relationship between mental stress, psychosocial factors, and health outcomes. Effective AI health apps for workplace stress must handle these bidirectional influences. Ergonomics and work-life balance promote health and productivity, according to Lakshmi et al. (2012). These findings suggest that AI technology can provide instructional tools and tailored support, improving work environments and balancing personal and professional obligations. Issues include data privacy, security, consent, and unequal AI access increasing health inequities (Lee & Kim, 2024). Consider AI's psychological impacts, such as dependency and trust, to sustain user wellbeing.

Conclusion

AI in health and wellness will mix technology innovation with psychological and ergonomic factors, according to the literature. The studies stress the need to address complex human needs comprehensively and offer insights on AI-driven solution design and deployment. As AI advances, these issues must be considered to provide effective health and wellness solutions. AI can improve diagnosis, treatment, and patient engagement, changing healthcare. AI integration into healthcare demands a multidisciplinary approach that addresses psychological, ergonomic, and technological concerns. Human-AI collaboration, cognitive, ergonomic, ethical, and socio-technical challenges should guide AI research. This lets stakeholders fully employ AI to improve healthcare system resilience, provider well-being, and patient care. AI must be used by technologists,

healthcare professionals, psychologists, and ergonomists to improve health in the digital age.

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Chapter 9

Attainment of Sustainable Development Goals in Uttar Pradesh

PRIYA AWASTHI

RIYA AWASTHI

Abstract

The Sustainable Development Goals (SDGs) are a set of global goals for fair and sustainable health at every level, from planetary biosphere to local community. The goals represent a framework that is scientifically robust and widely intuitive intended to build upon the progress established by the Millennium Development Goals (MDGs). There is a need for system wide strategic planning to integrate the economic, social and environmental dimensions into policy and actions. The present paper basically focusing on the Indian state of Uttar Pradesh aims to analyse the predictions of SDG Index score for 2021-2026 for Uttar Pradesh and India. The study has extracted the data from the “SDG India Index 2018, 2019 and 2020” to forecast the SDG Index score. Also, the values derived are compared with the targeted values of Index Scores to analyse the progress of the sustainable development goals individually and also there is an inter-comparison of the performances of Uttar Pradesh with India. Forecasting has been done for the period 2022-2026 by using FORECAST.ETS function from the excel 2016 software on the basis of previously available data. The results derived from the study shows that the Goal 3 and Goal 5 will be achieved by Uttar Pradesh till 2026 or even before that period while Goal 4, Goal 8 and Goal 10 will not be achieved by the state and will be far away from the set target of 100. The results also show that at India level only Goal 3 will be achieved before the stipulated period among the selected goals for the study while rest others will be far away from their goals.

Keywords: Sustainable development Goals, millennium Development goals, Uttar Pradesh, environmental dimensions.

Introduction

The Sustainable development goals (SDG) are also known as the Global goals, are a universal call to action to end poverty, ported the

plant and ensure that all people enjoy places and prosperity. In a word increasingly focused on sustainability and global development, the Sustainable development goals (SDGs) provide a roadmap for a better future, addressing a wide range of article issues. With over 200 million population Uttar Pradesh is the most populated state in India as well as the most populous country subdivision in the world. It has an article contribution to words achieving national and global goals. The sustainable development goals (SDGs) are also known as the Global goals, are a universal call to action to end poverty, ported the plant and ensure that all people enjoy place and prosperity. The Goals which have been selected for the study include goal (3) good health and wellbeing, goal (4) quality education goal, (5) gender equality goal, (8) decent work and economic growth and goal (10) reduce inequalities.

Literature Review

Nida (2023) highlighted the progress of achievement of sustainable development goals by India and the challenges therein. The purpose of this research is to provide a cost-benefit analysis of India's progress towards the SDGs. The Research takes stock of existing public resources across a range of government projects and policies in specifically and it analyses that are in line with the SDGs in order to calculate the additional funding needed and the gaps that currently exist in the country's efforts to achieve the SDGs.

Rich and Durdana (2023) pointed out that achieving the SDGs in India is critical to realizing the global 2030 Agenda over the Course of these decades. Yet much work remains to be done. This study explores, Indian youth understands of the important as associated to their attainment and how these goals impact on the lifestyles of business management students from the Indian state of Madhya Pradesh. This cross-sectional exploratory research study utilizes as self-designed scale and employs multistage sampling in its sample formation. The result shows that although, understanding of the SDGs impacts their attainment, the SDGs themselves do not impact on students' life style choices in their sample.

Sangeet (2022) focuses on the research question of identifying the public policy initiatives and the performance of various indicator of SDG1 in India. This research had identified the health insurance penetration, slum rehabilitation and rejuvenation of (MGNREGA)

which are also the futuristic of research. This paper contributes to the existing body of knowledge and recommends the key areas to be focused on achieving SDG1 in India. This review helps reader in understanding better methods of poverty eradication.

Panda and Sanjay (2019) discussed about the progress and prospects of health-related sustainable development goals in India. The study measured the progress in selected health-related indicators of SDGs in the states of India by social and economic groups, and predicted their likely progress by 2030. Data from the census of India, Sample registration System (SRS) and National Family Health Survey Organization (NFHS) were used in the analysis. Annual rate of Progress (RRp) was computed for selected indicators over the period 2005-06 to 2015-16. Notable improvements were observed in maternal and child health in India. However, progress in nutrition and other health indicators has been slow and uneven.

Ajishnu (2019) discussed about Goals 6 of SDGs which required a comprehensive Monitoring. India holds a key position among developing economies with a complex interconnected web of fast-growing population, completed with biophysical stress, social deprivation and economic equality related to utilization, availability and access to water resources and sanitation facilities. This study addresses some of these challenges related to monitoring and implementation of the targets of the UNSDG 6 in India. They have shown declining level of per capital biophysical water resources and shows that rapidly developing social indicators related to SDG 6 in India. They have also analysed the interrelationship of water and sanitation (SDG 6) with health (SDG3) and end to positive impact of increasing per capital GDP on improving sanitation related in dilators.

Khalid, Seema and Amlendu (2021) discussed about the key issues raised by developing countries with respect to the SDGs. Using opinion of experts on SDGs regarding its implications and feature, a study for India is presented. The Study with its findings and policy recommendations intend to benefit SDG implementation efforts and planning at the national and sub-national level in India and other developing countries.

Sakshi and Anita (2019) study is about the effect of indicators of sustainable development goal on India's GDP. The major objective is to find the partial correction of various dimensions like poverty,

education, gender equality, Environmental sustainability and health with the country's GDP. The Correlation analysis is performed by creation of multi-dimensional SDG Index via statistical technique called as principal component analysis (PCA). The Study uses the secondary data from authentic sources like world Bank UNDP and HDI reports. It exhibits that Poverty, environmental sustainability, health gender equality and education explain about 99% of the variation in India's GDP. The indicators of all the dimensions are significant in explaining country's GDP in order to measure welfare in a developing economy like India. There is a dire need to construct a measure which promotes sustained growth and higher level of productivity.

Objectives of the Study

Since the implementation of SDGs (Sustainable Development Goals) in India in 2015, increasing work has been done in the past years for attainment of SDGs by our state government yet operationalization of SDGs calls for regulatory challenges and investments. This paper deals with the comparative analysis of SDGs between India and Uttar Pradesh and also the progress which UP made in achieving SDGs and the way forward in attaining SDGs in UP.

1. To do the comparative analysis of the attainment of Sustainable Development Goals (SDG) between India and Uttar Pradesh.
2. To do the predictive analysis of the SDG Index score of the selected SDG goals for the selected period.

Data and Methodology

Data used for the study is secondary in nature and has been collected from the SDG India Index Score. Sustainable development goals Index scores are published in the SDG India Index score. Therefore, the data has been derived from the SDG India index score 2018-19; SDG India index score 2019-20 and SDG India index score 2020-21. The variables selected for the study are SDG goal 3 (Good health and well-being) which indicates the healthy lifestyles of children and women by providing improved vaccinations, reducing mortality rates, strengthening the health system, creating awareness and providing universal access of qualitative health care services. The second variable is SDG goal 4 (Quality education) which indicates providing equitable qualitative educational opportunities, proper schools infrastructure and promoting life-long learning opportunities for

everyone. The third variable selected for the study is SDG goal 5(Gender equality) which signifies the non- discriminant treatment of men and women and recognition of the needs, priorities and interests of both men and women. The fourth variable is SDG goal 8 (Decent work and economic growth) which indicates the standardization of living of people, providing productive employment opportunities and achieving sustained and inclusive economic growth. The fifth and also the last variable selected for the study is SDG goal 10 (Reduced inequalities) which indicates the reduction of the inequalities related to income, caste, age, sex, religion, origin, race and other economic or social issues related inequalities.

Forecasting has been done by using FORECASTS.ETS function of excel 2016 software on each of the selected variables which are SDG Goals (3,4,5,8 and 10) for a period of 2022-2026. FORECASTS.ETS function is used for anticipating or predicting the future value on the basis of existing or available values by using the exponential smoothing (ETS) algorithm, (AAA version). However, there may be slight variations in the results, if the forecasting is done separately for each year.

Data Analysis

For each of the SDG Goal selected for the study, the general trend until 2026 has been assessed and calculations are done for the period of 2018-2026 on the basis of the availability of whole data set in which the given data for the study is (2018-2020) and the forecasted values are for the period (2021-2026).

Table: 1 Predictive and comparative analysis of Sustainable Development Goals Index score of Uttar Pradesh and India

Goal3 (Good health and well-being)	Index Score UP	Targeted Index score	Index score India
2018 (Given values)	25	100	52
2019	34	100	61
2020	60	100	74
2021(Forecasted values)	75.30	100	84.48
2022	97.34	100	96.55
2023	115.14	100	107.62

2024	135.60	100	119.32
2025	154.39	100	130.62
2026	174.23	100	142.17
Goal 4(Quality Education)			
2018(Given values)	53	100	58
2019	48	100	58
2020	51	100	57
2021(Forecasted Values)	48.97	100	56.63
2022	50.10	100	55.86
2023	49.24	100	55.34
2024	49.64	100	54.67
2025	49.24	100	54.09
2026	49.34	100	53.46
Goal 5(Gender equality)			
2018(Given values)	27	100	36
2019	41	100	42
2020	50	100	48
2021(Forecasted values)	62.15	100	54
2022	72.31	100	60
2023	83.72	100	66
2024	94.35	100	72
2025	105.47	100	78
2026	116.29	100	84
Goal 8(Decent work and economic growth)			
2018(Given Values)	55	100	65
2019	64	100	64
2020	53	100	61
2021(Forecasted values)	52	100	59.26
2022	44.71	100	56.73
2023	41.37	100	54.69

2024	35.55	100	52.34
2025	31.29	100	50.19
2026	26.05	100	47.91
Goal10(Reduced inequalities)			
2018(Given values)	38	100	71
2019	46	100	64
2020	41	100	67
2021(Forecasted values)	44.18	100	63.71
2022	42.21	100	64.37
2023	43.48	100	62.55
2024	42.72	100	62.29
2025	43.23	100	61.05
2026	42.94	100	60.43

Source: *given values are from sustainable development indexes 2018, 2019 and 2020. *Forecasted values are author’s calculations.

In the above empirical analysis we can find out that in source of Goal-3 which was 60 in 2020 will reach 97.34 in 2022 (as per presented values and it has achieved its target of 100 in 2023 before its stipulated period of time which is 2030 for Uttar Pradesh while at India level, the Index score of goal 3 was 74 in 2020, however it has also achieved its target in 2023 but the rank of success in achieving the target of UP is greater than India.

UP SDG goal 4 which is depicting quality education coast having index score of 51 in 2020 but as per precast it got a declining trend and its value will be 49.34 in 2026 which is must for away from its targeted index score of 100. At India level also the situation is approximately similar as the index score of goal 4 which was 57 in 2020 will be declined as forecasted values and will reach 53.46 in 2026.

Uttar Pradesh will achieve the targets in index score of 100 of SDE goal 5 as its gives value which was 50 in 2020 will reach 105.47 in 2025 itself which equalizes its target value before the stipulated time period of 2030 However, at India Level Goal 5 will not achieve its targets as the index score which was 48 in 2020 will be able to reach only 84 in 2026. It also signifies that the goal 5 will be achieved by Uttar Pradesh. But at India level 100% gender equality will not be able to be achieved till target period.

The situation of Uttar Pradesh in achieving the targeted index score of goal 8 is not satisfactory as the given value of goal 8 which was 53 in 2020 will follow a decline trend in future as per predictions and will be very far away from its targets index score of 60. At India level goal 8 will also follow the same trends as the given value of goal 8 which was 61 in 2020 followed a declining trend due to pandemic situation and declined to 47.91 in 2026 as per forecasted value goal 10 of Uttar Pradesh will also not be achieved till the stipulated period of time as the given value which was 41 in 2020 will reach 72.94 in 2026 as per reacted value At India level also, the SDG Goal 10 will not be achieved as the given value in 2020 is 67 and it will follow a declining trends and will reached 60.43 in 2026.

Findings

The results derived from the present study shows that Uttar Pradesh will be able to achieve SDG goal 3 and 5 till the period of 2026 while other goals that is goal 4,8 and 10 would not be able to achieve the targeted SDG index score. At India level, SDG goal number 3 will only be able to achieve targeted SDG Index score while other goals will not achieve their set targets within the stipulated period of time. If comparison is made regarding the positions of Uttar Pradesh and India then Uttar Pradesh is making a greater progress in achieving SDG Index score than India at its individual level and therefore contributing a greater role in meeting the targets of AGENDA 2030.

Conclusion and Discussion

Therefore, as per analysis more stress need to be given to the SDG goals 3 and 5 both at state level and also at India level. SDG goal 3 shows the ensurance of healthy lives and well-being of all the people of all the ages. For this our government has started several schemes and programmes including Ayushman Bharat health insurance scheme and several other programmes for benefitting the underprivileged section of the country and the state. But, there is a need for more modernized better schemes and programmes which need to be launched by the government which in turn can help in achieving the target of AGENDA 2030 as both at India and Uttar Pradesh are much lagging behind in the achievement of this target within the stipulated period of time. The other SDG goal which needs greater consideration by the governmental authorities is the SDG goal 5 which shows the achievement of gender equality. India is the country

where much of gender inequalities could be seen. To tackle this problem more of the governmental efforts are needed to develop such schemes and programmes which help in the upliftment of the women of our country and therefore to achieve the targets of AGENDA 2030 as this target also lacks much behind from its targeted goal.

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Chapter 10

Social Innovation in Sustainability Transition: Approaching Sustainable Development through Social Innovations

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Abstract

Social innovation refers to the development and implementation of novel solutions to social and environmental challenges. These solutions aim to be more effective, efficient, sustainable, or just compared to existing ones. The concept involves collaboration among various sectors, including non-profits, businesses, governments, and often engages the community in the problem-solving process. Key aspects of social innovation include the introduction of new ideas, effective implementation, measurable impact, cross-sector collaboration, and sustainability. Social innovation and sustainability is a crucial component of social innovation, ensuring that solutions not only address immediate social needs but also contribute to long-term ecological and societal health.

Transformation in sustainability transition involves fundamental changes in societal systems that lead to new ways of thinking, organizing, and acting. Sustainability transitions as multi-dimensional and long-term processes involve shifts in technologies, policies, economic practices, and cultural norms.

Keywords: Social Innovation, Social innovation and Sustainability, Diffusion and Transformation in Sustainability Transition.

Introduction

Introduction to Social Innovation

Social innovation refers to the development and implementation of novel solutions to social and environmental challenges. These solutions aim to be more effective, efficient, sustainable, or just compared to existing ones. The concept involves collaboration among various sectors, including non-profits, businesses, governments, and often engages the community in the problem-solving process. Key

aspects of social innovation include the introduction of new ideas, effective implementation, measurable impact, cross-sector collaboration, and sustainability.

Literature Review

The study of social innovation and sustainability has gained significant attention in recent years, with various scholars contributing to the understanding of how innovative approaches can address complex social and environmental issues. Mulgan (2006) provides a foundational understanding of the process of social innovation, emphasizing its role in addressing social needs through innovative activities and services. This process involves the development, diffusion, and institutionalization of new ideas, practices, and products. Nicholls (2006) explores the concept of social entrepreneurship, highlighting how entrepreneurial approaches can drive sustainable social change. Social enterprises, in particular, play a crucial role in balancing social impact and economic viability, providing a model for integrating business practices with social missions. Murray, Caulier-Grice, and Mulgan (2010) offer an in-depth examination of the various stages and components of social innovation, including the roles of different actors, the importance of cross-sector collaboration, and the need for sustainable solutions. Geels and Schot (2007) introduce the multi-level perspective on sustainability transitions, providing a framework for understanding the interactions between niche innovations, regime changes, and landscape shifts. This perspective is essential for analyzing how social innovations can lead to systemic transformations. Rogers (2003) discusses the diffusion of innovations, outlining the process through which new ideas spread within and across social systems. This framework is critical for understanding how social innovations can achieve widespread adoption and impact. Osborne and Brown (2011) focus on service innovations in the public sector, emphasizing the importance of risk-taking and co-creation with service users to develop more effective and user-centric solutions. Nicholls and Emerson (2015) explore financial innovations, such as social impact bonds and crowd funding, that provide new funding mechanisms for social projects. These financial tools are essential for supporting the scaling and sustainability of social innovations. Westheimer and Kahne (2004) examine educational innovations, discussing how alternative schooling models and digital literacy programs can address

educational disparities and improve learning outcomes. Bocken et al. (2014) discuss business model innovation for sustainability, presenting a framework for developing business models that integrate social and environmental value creation. This approach is essential for companies seeking to align their operations with sustainability goals. Pol and Ville (2009) provide a theoretical foundation for social innovation, defining it as the creation of novel solutions that simultaneously meet social needs and lead to new social relationships or collaborations. This definition underscores the dual impact of social innovation on addressing social issues and fostering community development. Seyfang and Smith (2007) explore grassroots innovations for sustainable development, emphasizing the role of community-led initiatives in driving sustainability transitions. These grassroots innovations often emerge from the bottom-up, providing localized solutions that can be scaled and replicated. Business innovations can only have impacts on entire economic sectors, regions, or national economies when they are diffused. Thus, diffusion is an important subject both in mainstream and evolutionary economics (Dosi and Nelson, 2010). Given the noteworthy interest of economists in diffusion, several types of models have been developed (Dosi and Nelson, 2010; Stoneman and Battisti, 2010).

Types of Social Innovation

Social innovation can manifest in various forms, depending on the specific problems being addressed and the contexts of their implementation.

Below are the common types of social innovation:

Social Enterprises

Social enterprises are businesses created to address social issues while maintaining financial sustainability. Unlike traditional businesses, profits in social enterprises are often reinvested into the mission. These enterprises aim to balance social impact with economic viability.

Social Movements

Social movements are collective efforts by groups aiming to create significant change in societal norms, laws, or policies. Examples include the civil rights movement, environmental activism, and other grassroots campaigns that advocate for social justice and systemic change.

Community Development

Community development initiatives focus on improving the well-being of communities through participatory planning, local resource mobilization, and capacity building. These initiatives often engage community members directly in identifying needs and creating solutions.

Technology-based Innovations

These innovations leverage technology to solve social issues. Examples include mobile health apps, online education platforms, and renewable energy solutions. Technology-based innovations can significantly increase the scalability and reach of social solutions.

Policy Innovations

Policy innovations involve the creation of new policies or the modification of existing ones to improve social outcomes. Examples include universal basic income programs, healthcare reforms, and other legislative changes aimed at addressing social inequalities.

Service Innovations

Service innovations refer to new or improved services that meet social needs more effectively. Examples include community-based healthcare models, innovative education programs, and enhanced social services that are more accessible and user-centric. Product Innovations: Product innovations involve the creation of new products designed to address social problems. Examples include affordable water filters for developing countries, solar-powered lamps for areas without electricity, and other socially beneficial products.

Collaborative Platforms

These platforms facilitate collaboration and resource sharing among individuals and organizations working on social issues. Online or offline, these platforms can include forums, networks, and shared spaces that foster collective action and innovation.

Financial Innovations

Financial innovations introduce new financial mechanisms to support social causes. Examples include social impact bonds, microfinance, and crowdfunding platforms that provide funding for social projects and initiatives.

Educational Innovations

Educational innovations involve new methods or systems of education aimed at improving learning outcomes and accessibility. Examples include alternative schooling models, digital literacy programs, and other educational reforms that enhance the quality and reach of education.

Social Innovation and Sustainability

Sustainability is a crucial component of social innovation, ensuring that solutions not only address immediate social needs but also contribute to long-term ecological and societal health. Social innovation and sustainability intersect in several ways:

Environmental Sustainability

Social innovations often aim to mitigate environmental impact and promote sustainable practices. Examples include renewable energy projects, sustainable agriculture initiatives, and waste reduction programs. These innovations help reduce the ecological footprint while promoting economic and social well-being.

Economic Sustainability

Economic sustainability in social innovation involves creating economic opportunities that are inclusive and equitable. Social enterprises and microfinance initiatives, for instance, provide employment and financial services to marginalized communities, fostering economic stability and growth.

Social Sustainability

Social sustainability focuses on creating inclusive, equitable, and resilient communities. Innovations in education, healthcare, and community development contribute to social sustainability by addressing disparities and ensuring that all community members have access to essential services and opportunities. Integrative Approaches: Integrative approaches to social innovation involve combining environmental, economic, and social sustainability goals. For example, urban agriculture projects can address food security, provide employment, and reduce environmental impact through sustainable farming practices within city environments.

Policy and Governance

Policy innovations play a critical role in promoting sustainability. Governments and organizations can create frameworks and incentives that support sustainable practices and social innovations. Policies that promote renewable energy, sustainable transportation, and green building practices are examples of how governance can drive sustainability.

Key Features of Innovation: Basic Similarities and Substantial Differences in the Three Strands of Research

A fundamental common property of IS, SI, and ST research is that they all analyse innovation processes. Further, innovation and change are often analysed from the vantage point of desirable outcomes and impacts. Beyond these basic properties, their further key features are distinct:

- (i) the impetus to innovate, and thus the principal purpose of innovations, the main actors, and their interactions in innovation processes;
- (ii) the objects and levels of change;
- (iii) the sources, types, and forms of knowledge (co-)produced, utilised, and exchanged; and
- (iv) how success and impacts are defined and measured. We discuss below how these issues are addressed in the three strands. Given space limits, we cover neither models of innovation in the three strands of literature, nor the concepts of innovation systems and innovation ecosystems.

Diffusion and Transformation in Sustainability Transitions

The concepts of diffusion and transformation are pivotal in understanding how social innovations can lead to sustainability transitions.

Diffusion of Social Innovations

Diffusion refers to the process by which innovations spread within and across societies. Rogers (2003) defines diffusion as the process through which an innovation is communicated over time among the participants in a social system.

In the context of social innovation, diffusion involves:

Awareness and Information Sharing

Raising awareness about the innovation and sharing information through various channels, such as media, social networks, and educational programs.

Adoption by Early Adopters

Early adopters, often seen as opinion leaders, play a critical role in demonstrating the benefits of the innovation and influencing others to adopt it.

Scaling and Replication

Successful innovations can be scaled up and replicated in different contexts, which requires support from policymakers, financial institutions, and other stakeholders.

Institutionalization

For sustained impact, innovations need to be integrated into existing systems and structures, becoming a standard part of practices and policies.

Transformation in Sustainability Transitions

Transformation involves fundamental changes in societal systems that lead to new ways of thinking, organizing, and acting. Geels and Schot (2007) describe sustainability transitions as multi-dimensional and long-term processes that involve shifts in technologies, policies, economic practices, and cultural norms.

Key aspects of transformation include:

Systemic Change

Transformative social innovations address root causes of problems and lead to systemic changes in social, economic, and environmental systems.

Multi-level Perspective

Sustainability transitions involve interactions between different levels, including niche innovations (small-scale experiments), regime changes (established practices and rules), and landscape shifts (broad societal changes).

Stakeholder Engagement

Engaging a broad range of stakeholders, including governments, businesses, communities, and individuals, is essential for driving

transformation. Collaborative efforts can align goals and mobilize resources for impactful change.

Resilience and Adaptability

Transformative innovations enhance the resilience and adaptability of systems, enabling them to cope with and adapt to emerging challenges and uncertainties.

Diffusion Processes and Transformation Dynamics

Key features of Diffusion Processes

The level of change, diffusion, and system transformation are related issues: it is possible and necessary to disentangle these phenomena, but it is equally important to understand their interlinkages. Innovations do not only impact the firms and other organisations that introduce these new solutions, but incremental changes are also required to adapt innovations to the new context when they are diffused. Transformation denotes changes at the level of systems. In this section first we discuss the diffusion of innovations and then present transformation mechanisms identified in the IS, SI, and ST literature. The main features of diffusion processes can be captured by three stylised facts:

- (i) diffusion is a time-consuming process;
- (ii) its speed differs substantially by the innovations in question and also across countries; and
- (iii) an unknown, but probably significant proportion of innovations, even when introduced by some initial adopters, never diffuses widely, and thus ultimately ‘vanish’

Transformation dynamics in the innovation studies

We have identified four types of transformation dynamics in the IS literature:

- i. a widespread diffusion of new products and technologies;
- ii. social acceptance of ‘green’ technologies;
- iii. evolutionary and complex self-reinforcing dynamics; and
- iv. The emergence of new technical systems and techno-economic paradigms.

Principles of Innovation

Innovation is driven by several core principles that guide the development and implementation of new ideas, practices, and

solutions. These principles ensure that innovations are not only novel but also effective, sustainable, and impactful. **User-Centric Design:** Creating solutions that meet the actual needs and preferences of users, involving techniques such as user research and co-creation workshops.

- **Scalability:** Ensuring that innovations can expand their impact by reaching a larger audience or being replicated in different contexts.
- **Sustainability:** Designing innovations to minimize negative impacts on the environment, be economically viable, and promote social equity.
- **Collaboration:** Working together across different sectors, disciplines, and communities to enhance the innovation process.
- **Experimentation and Iteration:** Emphasizing the importance of testing new ideas, learning from failures, and continuously refining solutions.
- **Impact Measurement:** Evaluating the outcomes and effectiveness of innovations using data and evidence.
- **Inclusivity:** Ensuring that innovations are accessible and beneficial to all segments of society, particularly marginalized and underserved groups.
- **Adaptability:** Designing innovations to respond to changing circumstances and emerging challenges.
- **Ethical Considerations:** Ensuring that innovations are developed and implemented in a manner that respects ethical standards and values.

Conclusion

Social innovation is a multifaceted concept that encompasses a wide range of approaches to solving social and environmental challenges. By introducing new ideas, ensuring effective implementation, and fostering collaboration across sectors, social innovation aims to create sustainable and impactful solutions. The various types of social innovation—ranging from social enterprises and movements to technology-based solutions and policy changes—demonstrate the diverse ways in which innovative approaches can address complex social issues and improve overall societal well-being. Integrating sustainability into social innovation ensures that these solutions contribute to long-term ecological, economic, and social health, ultimately fostering more resilient and equitable communities. The processes of diffusion and transformation are crucial for ensuring that social innovations lead to significant change. Hence, the diffusion of

innovations is seen as a tightly intertwined process, even more so than in innovation studies, with further changes in the properties of the innovation in question.

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Chapter 11

Technological Advancements and Quality of Education

DR. PRIYANSHI GUPTA

Abstract

Technological advancements have significantly transformed the educational landscape, enhancing the quality and accessibility of education. This abstract explores the impact of various technologies, including digital learning platforms, artificial intelligence, and virtual reality, on educational quality. The integration of these technologies has facilitated personalized learning, enabling educators to tailor instruction to individual student needs, thus improving engagement and comprehension. Additionally, technology has expanded access to educational resources, bridging gaps caused by geographical and socioeconomic barriers. The use of data analytics in education has further refined teaching methods by providing insights into student performance and learning patterns.

However, the implementation of technology in education also presents challenges, such as ensuring equitable access and addressing privacy concerns. Overall, technological advancements hold great potential to elevate the quality of education, making it more inclusive, effective, and responsive to the needs of a diverse student population. This chapter delves into the multifaceted relationship between technology integration and education quality along with the challenges and opportunities associated with online learning and digital resources.

Keywords: Adaptive Learning Technologies, Quality Education, Artificial Intelligence, Inclusivity, Global Connectivity.

Introduction

In the rapidly evolving landscape of higher education, technology integration has emerged as a pivotal force reshaping teaching and learning methodologies. From the advent of personal computers to the current era dominated by artificial intelligence and virtual reality. Understanding this evolution sets the stage for a comprehensive analysis of how technology has transformed the educational landscape.

There are successful instances where technology integration has led to improved educational outcomes. While technology offers unprecedented opportunities, it also presents challenges, particularly in the realm of online learning. Technology integration generates vast amounts of data on student performance, engagement, and learning patterns. By tailoring content to individual student needs and learning styles, technology can enhance the quality of education. Real-world examples showcase successful implementations and the positive impact on student engagement and achievement. An essential aspect of technology integration is its impact on learning outcomes. The institutions can use evidence-based practices to continuously improve and ensure the quality of education delivery. This chapter delves into the multifaceted relationship between technology integration and education quality along with the challenges and opportunities associated with online learning and digital resources. As we navigate this digital era, it becomes imperative to critically assess the impact of technological advancements on the quality of higher education along with the role of educators in leveraging technology to enhance the quality of education, this chapter discusses the same.

Evolution of Educational Technology

The evolution of educational technology has been a dynamic and transformative journey, shaping the way knowledge is imparted and acquired. Over the decades, advancements in technology have profoundly influenced teaching and learning methodologies, ushering in an era of innovation and accessibility.

1. Emergence of Educational Technology: The roots of educational technology can be traced back to the mid-20th century when the first computers emerged. Initially, computers were large and cumbersome, and their application in education was limited. However, pioneers in the field recognized the potential for technology to revolutionize learning, planting the seeds for future developments.

2. Advent of Personal Computers: The 1970s witnessed the rise of personal computers, marking a significant milestone in the evolution of educational technology. These devices made computing power accessible to individuals and educational institutions, laying the groundwork for interactive and computer-based learning experiences.

3. Multimedia and Interactive Learning: As computing power increased, the 1980s saw the integration of multimedia elements into

educational materials. Textbooks transformed into interactive CD-ROMs, offering students a more engaging and dynamic learning experience. This era marked a shift towards a learner-centric approach, fostering active participation and exploration.

4. Internet Revolutionizes Education: The widespread adoption of the internet in the 1990s revolutionized the educational landscape. The World Wide Web became a vast repository of information, enabling global connectivity and collaboration. E-learning platforms emerged, providing accessible and flexible educational opportunities for learners around the world.

5. Rise of Learning Management Systems (LMS): The early 21st century witnessed the rise of Learning Management Systems, which streamlined course administration and provided a centralized platform for online education. LMS platforms facilitated communication, content delivery, and assessment, marking a significant shift towards the digitization of education.

6. Mobile Learning and BYOD: The proliferation of smartphones and mobile devices in the 2010s brought about a new era of mobile learning. Bring Your Own Device (BYOD) policies became prevalent, allowing students to access educational resources anytime, anywhere. Mobile apps, podcasts, and interactive simulations further diversified learning modalities.

7. Emergence of Virtual and Augmented Reality: In recent years, virtual and augmented reality technologies have begun to reshape educational experiences. Virtual classrooms, immersive simulations, and augmented reality applications offer students a more interactive and immersive way to engage with content, bringing abstract concepts to life.

8. Artificial Intelligence in Education: The integration of artificial intelligence (AI) has introduced personalized learning experiences. AI-driven tools analyse student data to tailor instruction, identify learning gaps, and provide targeted feedback. Intelligent tutoring systems and adaptive learning platforms represent the cutting edge of educational technology.

9. Open Educational Resources (OER) and Open Access: The concept of Open Educational Resources gained prominence, promoting the sharing of freely accessible educational materials. Open Access initiatives expanded access to scholarly research, breaking

down barriers to information and fostering a more inclusive educational landscape.

Impact of Technological Advancements on the Quality of Education

Technological advancements have catalysed a profound transformation in the landscape of education, influencing how knowledge is imparted, accessed, and assimilated. The impact of these advancements on the quality of education is multifaceted, shaping pedagogy, expanding access, and fostering innovative learning environments.

1. Enhanced Access to Information: One of the primary impacts of technological advancements is the democratization of information. The internet has become a vast repository of knowledge, providing students and educators with instant access to a wealth of resources. This unrestricted access empowers learners to explore diverse perspectives, fostering a richer and more comprehensive understanding of subjects.

2. Interactive and Engaging Learning Environments: Technology has introduced interactive and engaging learning experiences that go beyond traditional classroom settings. Multimedia elements, virtual simulations, and gamified educational content make learning more dynamic and participatory. This shift from passive to active learning contributes to increased student engagement and retention.

3. Personalized Learning Paths: Advancements in educational technology enable the creation of personalized learning paths. Adaptive learning platforms utilize algorithms to tailor instruction based on individual student needs, pacing, and learning styles. This customization optimizes the learning process, addressing the diverse needs of students and maximizing their educational potential.

4. Collaboration and Global Connectivity: Digital tools facilitate collaboration among students and educators irrespective of geographical boundaries. Virtual classrooms, video conferencing, and online collaborative platforms enable global connectivity, fostering cross-cultural interactions and collaborative learning experiences. This interconnectedness broadens students' perspectives and prepares them for a globally connected world.

5. Real-time Assessment and Feedback: Technology enables real-time assessment and feedback mechanisms, providing educators with instant insights into student performance. Learning management systems, online quizzes, and automated grading systems streamline the assessment process, allowing educators to identify learning gaps promptly and tailor interventions for individual students.

6. Technological Literacy and 21st Century Skills: The integration of technology in education equips students with essential technological literacy and 21st-century skills. Proficiency in digital tools, critical thinking, problem-solving, and effective communication become integral components of education. These skills are not only vital for academic success but also for future professional endeavours.

7. Accessibility and Inclusivity: Technological advancements contribute to greater accessibility and inclusivity in education. Online courses, digital textbooks, and assistive technologies cater to diverse learning needs, accommodating students with varying abilities and preferences. This inclusivity promotes equal educational opportunities for a broader spectrum of learners.

8. Professional Development for Educators: Educators benefit from technology by accessing professional development opportunities and staying abreast of innovative teaching methodologies. Online courses, webinars, and collaborative platforms enable continuous learning, ensuring that educators are well-equipped to integrate the latest technological tools into their teaching practices.

9. Challenges and Ethical Considerations: While the impact of technological advancements is overwhelmingly positive, it is essential to address challenges and ethical considerations. Issues such as digital divide, data privacy, and the potential for technological distractions require careful consideration to ensure equitable and responsible use of technology in education.

Challenges and Opportunities Associated with Online Learning and Digital Resources

The integration of online learning and digital resources into education has brought about a paradigm shift, offering both unprecedented opportunities and presenting unique challenges. Understanding and navigating these complexities are essential for harnessing the full potential of digital education.

Challenges

1. Digital Divide

- **Challenge:** Disparities in access to digital resources and the internet create a digital divide, limiting educational opportunities for underserved populations.
- **Impact:** Students without reliable internet access or adequate devices may face barriers to fully participating in online learning.

2. Technological Infrastructure

- **Challenge:** Insufficient technological infrastructure in certain regions or institutions can result in connectivity issues and hinder the seamless implementation of online learning.
- **Impact:** Uneven access to technology may impede the effectiveness of digital education initiatives.

3. Student Engagement and Motivation

- **Challenge:** Maintaining high levels of student engagement in an online environment can be challenging, as students may face distractions and a lack of face-to-face interaction.
- **Impact:** Reduced engagement may affect learning outcomes and the overall quality of the educational experience.

4. Quality of Online Content

- **Challenge:** Ensuring the quality and relevance of digital learning materials is crucial, as poorly designed content can hinder effective learning.
- **Impact:** Subpar content may result in a diminished educational experience and hinder the development of critical skills.

5. Assessment Integrity

- **Challenge:** Ensuring the integrity of assessments in an online setting poses challenges related to cheating and plagiarism.
- **Impact:** Maintaining academic honesty becomes more complex, requiring innovative strategies for secure and effective assessment.

Opportunities

1. Flexible Learning Environments

- **Opportunity:** Online learning provides flexibility in terms of time and location, allowing learners to access educational content at their own pace.
- **Impact:** This flexibility accommodates diverse learning styles and the scheduling constraints of students.

2. Global Collaboration

- **Opportunity:** Digital platforms enable collaboration among students and educators globally, fostering a rich exchange of ideas and perspectives.
- **Impact:** Students gain exposure to diverse cultures and viewpoints, enhancing their global awareness and collaboration skills.

3. Adaptive Learning Technologies

- **Opportunity:** Adaptive learning platforms use data analytics to tailor instruction to individual learner needs, optimizing the learning experience.
- **Impact:** Personalized learning paths enhance student comprehension and engagement, contributing to improved learning outcomes.

4. Cost-Efficiency

- **Opportunity:** Online learning can reduce costs associated with traditional education, such as commuting and physical infrastructure.
- **Impact:** Cost savings make education more accessible and can contribute to the scalability of educational programs.

5. Continuous Professional Development

- **Opportunity:** Digital resources facilitate ongoing professional development for educators through online courses, webinars, and collaborative platforms.
- **Impact:** Educators can stay current with pedagogical trends and technology integration, enhancing the quality of teaching.

6. Innovative Pedagogical Approaches

- **Opportunity:** Online learning encourages the exploration of innovative pedagogical approaches, such as flipped classrooms and interactive simulations.
- **Impact:** Experimentation with new teaching methods can lead to more effective and engaging educational experiences.

The Role of Educators in Leveraging Technology to Enhance the Quality of Education

Educators indeed play a pivotal and transformative role in leveraging technology to enhance educational quality. As facilitators of learning, their approach to integrating technology into the educational process significantly influences the effectiveness of these tools. Here are key ways educators contribute to leveraging technology for educational quality:

1. Integration of Technology in Pedagogy

- **Strategic Use of Tools:** Educators make informed decisions about the selection and integration of technology tools that align with learning objectives and enhance pedagogical practices.
- **Innovative Lesson Design:** They incorporate technology into lesson plans, creating interactive and dynamic learning experiences that cater to diverse learning styles.

2. Personalized Learning Experiences

- **Adaptation to Individual Needs:** Educators use technology to tailor instruction according to students' individual needs and learning preferences, fostering personalized learning paths.
- **Utilization of Adaptive Learning Platforms:** They leverage adaptive learning platforms that analyse data to provide customized content, pacing, and feedback.

3. Facilitation of Collaborative Learning

- **Online Collaboration Tools:** Educators use digital platforms to facilitate collaborative learning experiences, enabling students to engage in group projects, discussions, and peer-to-peer learning.
- **Global Connections:** They leverage technology to connect students with peers globally, broadening their perspectives and encouraging cross-cultural collaboration.

4. Ongoing Professional Development

- **Tech Literacy and Skill Development:** Educators invest in their own professional development to stay abreast of technological advancements, ensuring they possess the necessary skills to integrate technology effectively.
- **Continuous Learning:** They participate in workshops, webinars, and online courses, fostering a culture of continuous learning and adaptability.

5. Assessment and Feedback

- **Innovative Assessment Strategies:** Educators explore and implement technology-driven assessment tools that provide real-time feedback, allowing for timely interventions and a more comprehensive understanding of student progress.
- **Data-Informed Decision Making:** They use data generated by technology tools to assess the efficacy of teaching methods and adjust instructional strategies based on performance metrics.

6. Digital Citizenship and Ethical Use

- **Promotion of Digital Citizenship:** Educators play a crucial role in teaching students responsible and ethical use of technology, emphasizing digital citizenship, online etiquette, and critical evaluation of information.
- **Navigating Online Spaces:** They guide students in navigating digital spaces safely and understanding the implications of their online actions.

7. Overcoming Digital Equity Challenges

- **Advocacy for Access:** Educators advocate for equitable access to technology, recognizing the importance of addressing digital equity issues to ensure that all students have equal opportunities to benefit from technological resources.
- **Creative Solutions:** They develop creative solutions to bridge the digital divide, including partnerships with community organizations, access to technology resources, and promoting inclusive practices.

8. Innovation in Teaching Practices

- **Experimentation with Emerging Technologies:** Educators foster an innovative mindset by experimenting with emerging technologies, such as virtual and augmented reality, to explore new possibilities for teaching and learning.
- **Encouraging Student Creativity:** They encourage students to use technology as a tool for creativity, empowering them to express ideas through multimedia projects, coding, and other digital formats.

Conclusion

The intricate relationship between technology and education quality requires thoughtful consideration, ongoing evaluation, and a commitment to leveraging innovation responsibly. By embracing technology strategically and ethically, institutions can navigate the evolving educational landscape while maintaining and enhancing the quality of the learning experience.

The evolution of educational technology reflects a continual quest to enhance the quality and accessibility of education. From humble beginnings to the current era of artificial intelligence and immersive technologies, each phase has contributed to a more interconnected, adaptive, and learner-centric educational environment. As we move forward, the ongoing evolution of educational technology promises to shape the future of learning in ways yet to be imagined, with a focus on innovation, inclusivity, and the pursuit of educational excellence.

The impact of technological advancements on the quality of education is transformative, ushering in an era of innovation and accessibility. Embracing these advancements responsibly and addressing associated challenges can pave the way for a future where education is not only enriched by technology but is also more inclusive, personalized, and geared towards preparing students for the complexities of the modern world.

The challenges and opportunities associated with online learning and digital resources underscore the need for thoughtful planning and adaptation. Mitigating challenges and maximizing opportunities require a holistic approach that addresses technological, pedagogical, and social considerations. By doing so, educational institutions can

harness the transformative power of digital education to provide accessible, engaging, and high-quality learning experiences.

In essence, educators serve as catalysts for positive change, harnessing the potential of technology to elevate the quality of education. Their commitment to ongoing learning, thoughtful integration of technology, and dedication to student success contribute significantly to creating dynamic, engaging, and high-quality educational experiences.

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Chapter 12

Role of Education for Sustainable Development

DR. SULTANA KHANAM MOZUMDER

Abstract

Education for sustainable development is now trending slogan of this era. Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Education for Sustainable Development is based on ideals and principles that underline sustainability such as intergenerational equity, gender equity, social tolerance, poverty alleviation, environmental preservation and restoration. A core principle behind sustainable development is a combination of economic, social and environment conditions. Education is recognized as a major tool to change societies, consequently it is necessary to make education into a constructive tool by creating awareness among students. The link between education and development are seen in both directions. Nevertheless, it requires equilibrium to avoid detrimental effects and lead the world to a sustainable path. It was internationally recognized that Sustainable Development can be achieved through a process of learning. Therefore, education needs to be enhanced to lead the world to a more sustainable way of living. The objective of the paper is to explore the concept of sustainable development, and the various roles of education in ensuring sustainable development. The present paper is based on secondary data which will be collected from various sources like journals, books, reports, articles, newspapers, internets etc.

Keywords: Education, Environment, Sustainable Development, Programmes etc.

Introduction

“Education is a human right with immense power to transform. On its foundation rest the cornerstones of freedom, democracy and sustainable human development” *Kofi Annan*

Globally, education is a key instrument for attaining sustainability. It is the only medium that enables people to understand work for and benefit from sustainable development. Sustainable development is a development that addresses the needs of the present without compromising the abilities of forthcoming generations to meet their specific needs. Education is the process of developing an individual's personality and creativity so that they can contribute to promoting a healthy society. Education is actually a process, which influences individual capabilities, social environment, economic development, ethical surroundings and above all cultural adaptability. Education is expected to evolve principles, methodologies and guidelines for the application of knowledge that could benefit society. It is also expected to provide knowledge and skills for addressing the issues of development. It must also enable people and students to develop an understanding and a perspective of the physical and social environment.

Quality education is an essential component and instrument for creating a more sustainable society. This was emphatically stressed at the UN World Summit in Johannesburg in 2002, where the reorientation of current education systems was identified as the key to sustainable development. It should be highlighted that education for sustainable development fosters the development of the knowledge, skills, values, and activities necessary to establish a sustainable society that protects and conserves the environment, promotes social fairness, and stimulates economic well-being.

Concept of Sustainable Development

Sustainable Development (SD) is not a new idea to the world any longer. There have been long discussions to understand the meaning and concept of SD in nearly every academic and non-academic atmosphere. It was in the year 1987 when the World Commission on Environment and Development (WCED), also known as Brundtland Commission that introduced the concept and provided a simple definition of Sustainable Development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Cerin, 2006; Dernbach J. C., 1998; Dernbach J. C., 2003; Stoddart, 2011). It is the ability to make development choice which respects the relationship between the three “Es”-economy, ecology and equality. It aims at improving the quality of human life while living within the carrying capacity of supporting

ecosystems (IUCN, UNEP, WWF, 1980). Sustainable development helps in maintaining a delicate balance between the human need to improve lifestyles and feeling of well-being on the one hand, and on the other hand, preserving natural resources and ecosystems on which we and future generations depend. In other words it is improving the quality of life of the present generation without excessive use or abuse of natural resources, so that they can be preserved for the next generation.

Education for Sustainable Development

Education for Sustainable Development (ESD) has been defined as education that allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future. In other words, 'the ESD is the process of equipping students with the knowledge, skills and attributes needed to work and live in a way that safeguards environmental, social and economic well-being, both in the present and for future generations'. The key ESD issues relate to climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way. Thus, education for Sustainable Development requires far-reaching changes in the way education is often practiced today. The Education Sustainable Development would be meaningful when it is linked with issues that the world is facing today. It must be given a global outlook. Education thus plays an important and decisive role in sustainable development.

In the year 1998 the Sustainable Development Education Panel (SDEP) stating:

“Education for sustainable development is about the learning needed to maintain and improve our quality of life and the quality of life of generations to come. It is about equipping individuals, communities, groups, businesses and government to live and act sustainably; as well as giving them an understanding of the environmental, social and economic issues involved. It is about preparing for the world in which we will live in the next century and making sure that we are not found wanting”.

Role of Education for Sustainable Development

Education is our bridge from the past to the present and from the present to the future. ESD is considerably broader in scope and complements the adjectival educations. In other words, ESD encompasses many aspects of these respected and established fields of study (Bhandari & Abe, 2003). Embarking on the path of sustainable development will require a profound transformation of how we think and act. To create a more sustainable world and to engage with sustainability-related issues as described in the SDGs, individuals must become sustainability change-makers. They require the knowledge, skills, values and attitudes that empower them to contribute to sustainable development. Education, therefore, is crucial for the achievement of sustainable development. However, not all kinds of education support sustainable development. Education that promotes economic growth alone may well also lead to an increase in unsustainable consumption patterns. The now well-established approach of Education for Sustainable Development (ESD) empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society for present and future generations,

(<http://unesdoc.unesco.org/images/0024/002474/247444e.pdf>).

- 1. Sustainable Economic Production:** Education can develop of knowledge based societies; the influence of new technologies on the creation of knowledge is growing. Not only are the rate of production and the volume of information continuing to grow exponentially, but information is also less and less dependent on text-based transmission and increasingly includes audio, graphic, and visual supports through a variety of media. The exponential growth in the volume of information and its changing nature are questioning the very notions of the authority of traditional bodies of knowledge controlled by legitimate educational institutions. (UNESCO, Source Book, 2012).
- 2. Economic Growth:** Economic growth is necessary, even if not sufficient, for poverty reduction. Education generates productivity gains that fuel economic growth. Quality of education is vital for economic growth. Spending more time in school, while important, is not enough. Children need to be learning. Some analysts have suggested that a proof of the economic effect of education would require measures of quality and learning outcomes. Countries need

to monitor their students' learning over a sufficiently long period in order to assess the effects of education and quality on economic growth (UNESCO, 2014).

3. **Sustainable Infrastructure:** Development decisions regarding technology and infrastructure are a major determinant of consumption patterns. It is therefore important to evaluate and make development decisions which structurally lead to a more sustainable society. Technologies exist through which substantial reduction in consumption of resources is possible. Efforts to identify, evaluate, introduce and use these technologies must be made. It is important to counter this through education and public awareness (UNESCO, Source Book, 2012).
4. **Helps to Eradicate Desertification:** Addressing and alleviating the consequences of desertification is of critical importance. Children, who are particularly receptive to new ideas and who demonstrate a spontaneous interest in nature and the environment, can be the front-line players in such collective action. This is why UNCCD and UNESCO have jointly produced educational materials on desertification, land degradation pupils in countries affected by desertification. The Education Kit on Combating Desertification contains a teacher's guide, illustrations and case studies from different regions around the world. Featuring cartoons, games and stories that bring sustainable development issues to life for children (UNESCO, (2014).
5. **Management of Natural Resources:** Education also helps to manage the integration of agriculture with land and water management, and with ecosystem conservation that is essential for both environmental sustainability and agricultural production. Education ensures the sustainability of the natural resource base, the recognition of all stakeholders in it and their roles.
6. **Poverty Alleviation:** Poverty and a degraded environment are closely inter-related, especially where people depend for their livelihoods primarily on the natural resource base of their immediate environment. Poverty magnifies the problem of hunger and malnutrition. The problem is further compounded by the inequitable access of the poor to the food that is available. Education is the only tools that reduction the poverty and sustains it for future generation.

7. **Women Empowerment and Sustainable Development:** Women play a vital role in environmental management and development. Their full participation is therefore essential to achieving sustainable development. Education plays an important role in uplifting the women. Empowerment of women contributes to the sustainable development (UNESCO, Source Book, 2012).
8. **Improving the Quality of Learning:** Many children are in school but are learning very little year after year. Also, too many young people graduate without the tools and skills for today's job market. Children need to acquire relevant skills to participate successfully in today's knowledge based society. And if we can able to give quality education it will helps to increase the employment among young people (Laurie, R & et.al, 2016).
9. **Ensure Inclusive and Equitable Quality:** The important role of education and lifelong learning opportunities for all (formal, non-formal and informal learning) as main drivers of sustainable development, for improving people's lives and in achieving the SDGs. We can see the inequality in access to and attainment of education, particularly between girls and boys and in rural areas, and about reasons for a lack of equitable access to quality education and lifelong learning opportunities. We strongly say that education can help create a more sustainable, equitable and peaceful world (UNESCO, 2014).
10. **Formal Education:** Formal education which promotes functional literacy, livelihood skills, understanding of the immediate environment and values of responsible citizenship is a precondition for sustainable development. Such education must be available to every child as a fundamental right, without discrimination on the basis of economic class, geographical location or cultural identity (UNESCO, source book, 2012).
11. **Increase Efficiency:** Increase Efficiency: Education aims at developing competencies that empower individuals to reflect on their own actions, taking into account their current and future social, cultural, economic and environmental impacts, from a local and a global perspective. Individuals should also be empowered to act in complex situations in a sustainable manner, which may require them to strike out in new directions; and to participate in socio-political processes, moving their societies towards sustainable development.

(<http://unesdoc.unesco.org/images/0024/002474/247444e.pdf>)

Objectives of the Study

The objectives of the study are precisely discussed as follows:

1. To explore the concept of sustainable development, and the various roles of education in ensuring sustainable development.
2. To promote the development of the knowledge, skills and education through sustainable development.

Methodology

Methodology constitutes an essential step in every research endeavor. It enables the researcher to conduct his investigation in a scientific manner. It is a systematic process of conducting a research study. The paper is purely descriptive and based on secondary sources which will be collected from various sources like journals, books, reports, articles, newspapers, internets etc.

Review of related Literature

Gunther J. (2022), contributed to the field of education for sustainable development (ESD). To achieve a more sustainable world, a quality education is necessary. This was emphasized during the 2002 United Nations World Summit in Johannesburg, where it was determined that reorienting the country's current educational systems was essential to long-term growth. Education for sustainable development promotes the acquisition of the knowledge, abilities, comprehension, values, and behaviors necessary to build a world that is socially just, ecologically sustainable, and economically successful. The development of ESD was influenced by environmental education, which aimed to impart in people the values, attitudes, information, abilities, and behaviors needed to protect their surroundings. Empowering people to make choices and take part in activities that improve our quality of life while staying safe is the goal of ESD.

Krayneva, R., Rudenko, A., and Motylev, R. (2021), conducted study on the role of education in implementing sustainable development strategies. This study recommends that education and sustainable development be integrated into formal education in schools, and that it expresses and describes what is required to prepare students for sustainable development. It is equally critical to communicate the scientific and theoretical foundations for these difficulties. Education and sustainable development help people get

the skills and knowledge they need to build a more sustainable future for themselves, their families, and society. The purpose of education and sustainable development is to enable people to make decisions and take activities that improve their quality of life while reducing their environmental effect.

Munde, E. (2023), conducted research on education for sustainable development in India. Education for Sustainable Development (ESD) is a learning process that aims to enable individuals and communities to make informed decisions and conduct responsible actions that promote environmental, social, and economic sustainability. It is a holistic strategy that considers the relationships between economic, social, and environmental factors, and recognizes that sustainable development requires the integration of these three pillars. ESD aims to provide individuals with the knowledge, skills, and values needed to face the problems of sustainable development. This includes understanding the natural world's interdependence, recognizing the influence of human activities on the environment, and devising measures to mitigate negative effects and promote positive change.

Sulaiman, M. (2019), conducted a study on education for sustainability. Education for Sustainable Development (ESD) is a dynamic concept that combines a new educational viewpoint to balance human and economic well-being with cultural traditions and respect for the earth's natural resources. It emphasizes the importance of learning in the lead-up to the transition to sustainability, such as citizenship education, education for a culture of peace, gender equality, respect for human rights, health education, population education, education for natural resource protection and management, and education for sustainable utilization. As a result, education must be transformed into a beneficial tool for increasing global awareness among students and the general public. ESD uses trans-disciplinary educational systems to develop ideas for lifelong learning, encourages respect for human needs that are compatible with the sustainable use of natural resources, and fosters a sense of global solidarity. Education for sustainable development has been defined as the activity of learning how to make decisions that affect the long-term future of all communities' economies, ecosystems, and social well-being. Thus, ESD serves as a mechanism of maintaining equilibrium between humans and nature.

Discussion

The researcher has examined literature reviews that explicitly demonstrate the function of education in promoting sustainable development. The researcher discovered after evaluating the reviews that education for sustainable development is crucial to our way of life and behavior. Learning how to make judgments that impact us is considered the process of education. It is focused on the future of the environment, the economy, and the social cohesion of all communities. One of the main goals of education is to develop the capacity for such prospective thinking. Education is also an important means of implementing sustainable development because it provides a framework in which the perceived tensions between economic, social, and environmental development can be reconciled and integrated into a single concept and pursuit of sustainable well-being for all. Education for Sustainable Development (ESD) is a dynamic idea that incorporates a new vision of education, aiming to empower people of all ages to take responsibility for building and enjoying a sustainable future.

Education and sustainable development enable people to get the skills and information they need to create a more sustainable future for themselves, their families, and society (Krayneva, Rudenko, & Motylev, 2021). Education for Sustainable for Development strives to provide individuals with the information, skills, and values required to meet the challenges of sustainable development (Munde, 2023). Education for sustainable development encourages the development of knowledge, skills, understanding, values, and activities required to create an environmentally benign, socially equitable, and economically successful world. The purpose of Education for Sustainable Development is to empower individuals to make decisions and engage in activities that increase our quality of life while being safe (Gunther, 2022). Education for sustainable development has come to be defined as the practice of learning how to make decisions that affect the long-term future of the economy, ecology, and social welfare of all communities (Sulaiman, 2019).

Conclusion

Education plays an important role in the social, spiritual and cultural development of our society. It contributes towards improving the standard of living and livelihoods of the community. Quality education

should inculcate in people diverse skills and values that prepare them to participate actively in social, political and economic environments and make informed and responsible decisions. It has one of the basic characteristics of imparting culture from generation to generation. The fundamental aim of the educational system for sustainable development is to 'educate a new generation of sustainable thinking', a world leader of Cosmo-planetary awareness with a universal world outlook, who has a culture of sustainability, high socio-cultural needs and deep moral-ethical values, who is proficient in solving global responsibilities faced by mankind and promoting the creation of a sustainable society. Education for sustainable development is a dynamic perspective that includes a new approach to education that encourages people of all ages to shoulder responsibility for forming and enjoying a sustainable future.

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Chapter 13

Ramarajya and Symbolization of Sustainable Development: Indian Perspectives of Sustainable Good Governance

EKANSH AWASTHI

Abstract

Sustainable Development has emerged as the most dynamic and vibrant concept across the globe. Also, the ideals of good governance have invariably come to be associated with the concept of sustainable development, for both are greatly interdependent over each other and it is matter of fact that any one among them cannot exist without the other. Although, this concept has gained global importance in the past decades, its ideals have been in existence for long. In context of India, these concepts of sustainability, sustainable development, sustainable society and good governance have been in existence from times immemorial. Indian society was ideally built upon the ideals of sustainability and good governance, and Indian texts and literature, whether religious or secular in nature, stand testimony to this fact. In this regard, the concept of *Ramarajya* is of utmost importance. This concept, which finds its mention in the ancient and medieval Indian texts of *Ramayana* of Valmiki and *Ramacharitamansa* of Goswami Tulasidasa respectively, when analyzed from the point of view of sustainable development seems to be manifesting the ideals of sustainability coupled with good governance in symbolic form through the description of society and societal conditions. This reflects the fact that in India, the idea and concept associated with an ideal and just society in general and good governance in particular, was based upon the ideals of sustainability. This symbolization of sustainable development enshrined within good governance in *Ramarajya* has been interpreted and dealt with in detail in this paper.

Keywords: *Ramarajya*, Sustainable Development, Good Governance, Sustainability, Sustainable Good Governance.

Introduction

In the modern era of development, development is becoming more and more unplanned and unorganized. This is leading to the plundering of natural resources which can cause serious issues to the future generations. In this situation, the concept of Sustainable Development has appeared as the solution to these issues. This concept got a concrete form in its definition given by the Brundtland Commission. The administering of this sustainable development requires for an equally efficient and organized governing system. Hence, it will not be wrong to assert that Sustainable Development and Good Governance are interdependent.

It is in this context, that in the modern era of sustainable development, this paper focuses on the ancient concept of the *Ramarajya*. *Ramarajya*, i.e., the rule of *Rama*, has been mentioned in the *Yuddhakanda* of *Ramayana* of *Valmiki* (which is generally assigned the date of 8th-7th Century B.C.E. to 3rd Century C.E.) and in the *Uttarakanda* of *Ramacharitamanasa* of *Goswami Tulsidasa*. It has been described as an epitome of ideal and just rule based upon the notion of welfare of all. This has been done through the symbolizations in form of descriptions of conditions of the state, society, subjects and natural resources as well under the rule of *Rama*. These symbolizations, when assessed and taken with abroad and modern outlook, can be interpreted and analyzed to link them with the Sustainable Good Governance in general and Sustainable Development Goals (SDGs) in particular. The same has been done in the later sections by with dynamic perspectives.

Why an Indian Perspective?

The first question which is bound to arise in any mind is that why do we even need an Indian perspective for these concepts of sustainable development and good governance; and what is the need of looking back into the ancient times in search of these modern concepts. Here it is important to understand these global concepts can succeed in local environments only when they are dealt or acted upon as per local ideals. Hence, this Indian perspective acts as a step towards 'Think Global, Act Local'. When a comparison is made between these global concepts and this local concept, it serves an important role for implication of the fact and to prove that sustainability and sustainable development is an indigenous concept; and is therefore neither an idea

foreign to Indian culture nor a West-implanted concept. Here, it is also important to understand that, in general, people are always more open to adopt the practices which are a part of their own culture; therefore, developing an Indian perspective and relating it with Indian culture helps in developing a sense of belongingness among them with these concepts of good governance and sustainable development.

The present strategy of the government and responsible agencies is to implement these goals of sustainable development and good governance as the responsibility or duty of people; and awareness is raised for the same. It is a well-known fact that most Indian people, by nature, are religious minded. Hence, relating sustainable development and good governance with *Ramarajya* or the 'rule of *Rama*' helps in alleviating it from a responsibility or duty to a virtuous activity to be undertaken by people; as people can be motivated to follow these ideals as they were ideals given in their holy scriptures. Generally, SDGs are implemented by agencies responsible over the general public and therefore a Top-Down approach is adopted in their adoption and implementation. With the help of an Indian perspective and by relating it with the culture of the land, attracting people's participation becomes easier. Therefore, this helps in facilitating a Bottom-Up approach in place of Top-Down approach for the adoption and implementation of sustainable development/sustainability. Hence, the role an Indian perspective can play becomes much clear in this context.

Interpreting and Understanding the Symbolizations in Texts

SDG 1. No Poverty: It has been symbolized by describing that in the *Ramarajya*, no one is poor and hence, there is no prevalence of poverty. Also, there is neither any grief, nor sorrow in the society under *Ramarajya*.¹

SDG 2. Zero Hunger: It can be compared with the symbolization of the fact that under the *Ramarajya*, all people have healthy and nourished body or physique. This is only possible when people get enough nutrition.²

SDG 3. Good Health and Well-Being: In the *Ramarajya*, all people have been described as free from any kind of diseases which depicts the good health prevailing in society. It is also said that they all are free from any kind of illness or griefs which reflects well-being of public.³

SDG 4. Quality Education: It has been clearly described that nobody is illiterate in the *Ramarajya*. Moreover, not only literacy but the

descriptions go on to highlight that everyone is highly learnt and skilled which shows that not only education is provided to everyone but it is effective as well.⁴

SDG 5. Gender Equality: It is symbolized in the fact that both men as well as women are equally entitled to achieve the highest status; and that women are equally learnt as well as skilled as men in the *Ramarajya*. This shows that any kind of gender-based discrimination does not exist in society under *Ramarajya*.⁵

SDG 6. Clean Water and Sanitation: It has been described that rivers are unpolluted and have clean water in their flow which shows that main sources of water are clean and that sanitation is well-maintained.⁶

SDG 8. Decent Work and Economic Conditions: It can be compared with the description that in *Ramarajya*, everyone is engaged in and follow the duties assigned to them which reflects decent work available to them. Also, no one is penniless and the description that prosperity under *Ramarajya* is indescribable which is a symbol of good economic condition.⁷

SDG 10. Reduced Inequalities: It has been symbolized in describing that all inequalities have ceased to exist in the *Ramarajya*. Social harmony, which has been described to be prevailing in *Ramarajya*, can be only possible in such a society.⁸

SDG 11. Sustainable Cities and Communities: It is needless to mention from the above given examples and the ones which will be given and discussed later that the description of *Ramarajya* is in itself an epitome of the fact that the cities and communities have been symbolized as sustainable.⁹

SDG 12. Responsible Consumption and Production: The fantastic description of natural resources giving their produces themselves as per the needs of people in *Ramarajya* is a symbolization of the fact that consumption and production of resources is being done responsibly.¹⁰

SDG 13. Climate Action: The descriptions of fresh breeze/air and timely rains seem to be symbolizations that implicate pollution-free and decent climatic conditions which are there in *Ramarajya*.¹¹

SDG 15. Life on Land: In the *Ramarajya*, forests and wildlife have been described as flourishing. The harmony which has been described between all wild species seems to symbolize and denote the balance in

biodiversity. As a whole, this seems to be symbolizing a sustainable ecosystem and biodiversity.¹²

SDG 16. Peace and Justice: Peace and justice is the driving force of *Ramarajya* as is clear from the descriptions and symbols, directly as well as indirectly. The descriptions go on to tell that there is no sin, no need for punishments, even opponents are living together in harmony, world is bereft of thefts and robberies; and that society is based upon ideals of virtue.¹³

***Ramarajya* and Sustainable Good Governance: Its Features**

People Centric Governance: It is quite important to note and see that in the *Ramarajya*, the upliftment of conditions of public/subjects in all spheres and satisfaction of their every need as well as aspirations have been taken as the basis of all the progress and developmental activities. It is not based upon just enhancing or increasing the power of State in all spheres. Hence, it gives to us the notion that governance in its ideal sense should be centred around the public/people and that true development is one which focuses on the progress of common man in all aspects. In this way, the concept of People Centric Governance appears to be one of the main features of good governance under the *Ramarajya*.

Sustainable Infrastructure: In the modern times, infrastructural development is integral to any form of development. An efficient infrastructure plays great role in providing benefits of good governance to the people. It is also a fact that this infrastructural development is leading to serious issues too in present world due to its uncontrolled nature at times and therefore its development on sustainable grounds is required. In this context, through the interpretation of symbolization, any sort of infrastructural development of any public service has been depicted in *Ramarajya* as based upon efficiency, cooperation, eco-friendliness and hence, complies with sustainability. Hence, it conveys the message that any infrastructural development should be in tunes with sustainability.

Minimum Government, Maximum Governance: This concept has come to play an important role in modern times. Over-interference of State in the name of development is becoming a common phenomenon. In this context, we can observe that although, in *Ramarajya*, State's assistance has been given important role for prosperity and development yet there is no over-interference in public

affairs by the State. It is, in fact, the society which has been mentioned more in the context of such activities. This may reflect an ideal that an ideal governance is one where the governance is done by government in such an efficient way that developmental activities, rather than being state-driven, are society-driven and thus an efficient government is one that governs maximum with minimum interference. This feature seems to be highlighted well in *Ramarajya*.

Green Governance or Green Development: We all are aware of the continuous depletion of natural resources for uncontrolled activities of development. In this regard, green development has emerged as a concept only on saving nature but focuses on ways in which development can be coupled with the surroundings and environments and how present notions of development can be modified in eco-friendly ways. In the *Ramarajya*, green governance or protection as well as development of natural resources and eco-friendly behaviour seems to have been given equal and utmost importance. It is equally noteworthy that these factors have not only been given importance but are also an important standard of development as well. Thus, green governance clearly seems to be an integral feature of the *Ramarajya*.

Conclusion

After understanding and analyzing the symbolization which lies in the descriptions given about the concept of *Ramarajya*, it can be safely concluded that the State based upon the ideals of good governance and sustainability has been the best model of State for the Indian minds for millenniums. It has also been cherished for long and this concept stands as a testimony to them as well. It must be noted here that although, the concepts of *Ramarajya* and Sustainable Development (in its modern form) are not at all contemporary or totally analogous, yet an attempt of finding parallels through symbolization has been done in this paper so as to show that the standards which were set up for a developed society from the Indian perspectives were and remain to the ones based upon sustainability, in practice as in essence.

Literature has been, for long, a reflection of the conditions, choices, aspirations, beliefs of society. Hence, it plays great role in reconstruction of the aspirations of any particular society. The *Ramayana* of Valmiki and *Ramacharitamanasa* of Goswami Tulsidas have been long cherished works within Indian society. The ideal rule or governance system, described in and as *Ramarajya* presents to us a

vivid picture of aspirations/belief of Indian society regarding the former through effective symbolizations. From the comparative analysis which has been done above, it will not be wrong to assert and conclude that the public aspiration in Indian society, manifesting in literature or texts, about the development has been based upon the noble ideals of cooperation, harmony, collectiveness, eco-friendliness, etc. and has adopted a dynamic approach by focusing on the all-round development of not only mankind but all the beings or organisms.

Only an Indian Perspective of Sustainability and Good Governance adopted at present, derived from the experiences of the past, will lead Indian Society on the path of Sustainable Development in Future.

Endnotes

¹ *Sri Ramacharitamanasa of Goswami Tulasidasa* (hereafter, *RM*), Gita Press, Gorakhpur, VII.20.6.

² Cf. *ibid.*, VII.20.5.

³ Cf. *ibid.*, VII.20, 20.1, 5, 6; *Srimad Valmiki Ramayana* (hereafter, *RV*), Gita Press, Gorakhpur, VI.128.99,102.

⁴ Cf. *ibid.*, VI.128.106; *RM*, VII.20.6,8.

⁵ Cf. *ibid.*, VII.19.8, 20.4, 21.8.

⁶ Cf. *ibid.*, VII.22.8.

⁷ Cf. *ibid.*, VII.20, 20.2, 21.6; *RV*, VI.128.105.

⁸ Cf. *RM*, VII.19.8, 20.2.

⁹ Cf. *ibid.*, VII.19.7-22.10; *RV*, VI.128.99-106.

¹⁰ Cf. *ibid.*, VI.128.104; *RM*, VII.22.1, 5-7, 9.

¹¹ Cf. *ibid.*, VII.22.4; *RV*, VI.128.104.

¹² Cf. *RM*, VII.22.1-3.

¹³ Cf. *ibid.*, VII.20.3, 7, 22.1-2; *RV*, VI.128.100-1.



Chapter 14

The Influence of Emotional Intelligence on Leadership Effectiveness: A Comprehensive Review

SANDIP SUTRADHAR

Abstract

Emotional intelligence, refers as the ability to perceive, understand, manage, and regulate one's own emotions and those of others, emotional intelligence has gained very significant role in the context of leadership. This comprehensive review aims to find out the significance of emotional intelligence in shaping and molding the effective leadership practices, highlighting its impact on various dimensions such as communication, decision-making, team collaboration, and overall organizational success. This research aims to explore the intricate connection between emotional intelligence and leadership effectiveness, delving into the ways in which leaders with high emotional intelligence contribute to organizational success. This review integrates findings from a comprehensive analysis of peer-reviewed articles, books, and empirical studies on the intersection of emotional intelligence and leadership effectiveness. This research paper is basically descriptive and content analytical in nature. The data used in it is purely from secondary sources according to the needs of the study. Information collected from the theses, publications of journals, articles, books and educational websites, is extensively used. Major findings of the study from the different research it was found that Leaders with high EI contribute to increased employee engagement and job satisfaction.

Keywords: Emotional Intelligence, Leadership, communication, decision-making, team collaboration, organizational success.

Introduction

"Emotional intelligence is the ability to monitor one's own and other people's emotions, to discriminate between different emotions and label them appropriately, and to use emotional information to guide thinking and behavior." Salovey and Mayer (1990).

In the rapid changing and ever-evolving landscape of organizational leadership, the role of emotional intelligence (EI) has emerged as a

critical factor influencing the effectiveness of leaders. Emotional intelligence is defined as the ability to recognize, understand, manage, and utilize one's own emotions as well as those of others, has gained increasing attention in the field of leadership studies. This research aims to explore the intricate connection between emotional intelligence and leadership effectiveness, delving into the ways in which leaders with high emotional intelligence contribute to organizational success. Emotional intelligence serves as a foundational element in effective leadership by enabling leaders to navigate the complexities of human interactions within the workplace. As Goleman (1998) proposed, EI encompasses five key components: self-awareness, self-regulation, motivation, empathy, and social skills. Leaders who possess a high degree of emotional intelligence can leverage these components to foster positive relationships, enhance team dynamics, and navigate challenging situations. Leaders with heightened emotional intelligence exhibit a superior capacity for decision-making and problem-solving. By understanding their own emotions and those of others, emotionally intelligent leaders can make informed and empathetic decisions that resonate with the needs and concerns of their teams (Salovey & Mayer, 1990). This capability contributes to a more collaborative and inclusive decision-making process within organizations. The ability to communicate effectively lies at the core of leadership success. Leaders with a high level of emotional intelligence excel in interpersonal communication, utilizing empathy and social skills to build strong relationships with team members (Goleman, 1995). Such leaders create a positive work environment where open communication is encouraged, fostering trust and loyalty among team members. The ever-changing nature of the business environment demands leaders who can adapt to challenges and setbacks. Emotional intelligence equips leaders with the resilience needed to navigate uncertainties and setbacks, fostering a climate of adaptability within the organization (Mayer & Salovey, 1997). Leaders who can effectively manage their own emotions and guide their teams through adversity contribute significantly to long-term organizational success. Emotional intelligence plays a pivotal role in inspirational leadership, as emotionally intelligent leaders can motivate and inspire their teams to achieve their full potential (Boyatzis, Goleman, & Rhee, 2000). By understanding the emotions and motivations of team members, leaders can tailor their leadership approach to cultivate a

sense of purpose and commitment among employees. The link between emotional intelligence and leadership effectiveness is a multifaceted and dynamic relationship. This research seeks to delve deeper into the various dimensions of emotional intelligence and its impact on leadership, ultimately providing valuable insights for organizations seeking to cultivate effective and emotionally intelligent leaders.

Significance of the Study

Understanding how emotional intelligence affects leadership effectiveness can provide valuable insights for leadership development programs. By identifying the specific emotional intelligence competencies that contribute to effective leadership, organizations can design targeted training initiatives to enhance these skills in their leaders. Effective leadership is often linked to higher employee performance and satisfaction. The study investigate how leaders with higher emotional intelligence can create a positive work environment, foster better communication, and build stronger relationships with their teams, ultimately influencing employee well-being and organizational outcomes. Leadership effectiveness plays a crucial role in organizational success and productivity. Examining the influence of emotional intelligence on leadership can help organizations understand how investing in the development of emotional intelligence can lead to improved team dynamics, decision-making, and overall organizational performance. Emotional intelligence is closely tied to interpersonal skills and the ability to navigate conflicts. The study explored leaders with higher emotional intelligence are better equipped to handle conflicts within teams, promote collaboration, and create a positive team culture. In today's dynamic business environment, adaptability is crucial. Leaders with high emotional intelligence may be more adept at managing change, navigating uncertainty, and leading their teams through transitions. The study may shed light on how emotional intelligence contributes to effective change management. The study may aim to identify specific components of emotional intelligence, such as self-awareness, self-regulation, motivation, empathy, and social skills that have the most significant impact on leadership effectiveness. This information can guide targeted interventions for leadership improvement. The study might be conducted to fill a gap in the existing literature on the relationship between emotional intelligence and leadership. By

providing a comprehensive review, the researchers can contribute to the academic understanding of this important intersection and potentially offer recommendations for future research. The rationale for the study lies in the practical implications for leadership development, organizational success, employee well-being, and the academic contribution to the understanding of how emotional intelligence influences leadership effectiveness.

Objective

Aims to explore and analyze the relationship between emotional intelligence (EI) and leadership effectiveness.

Review of Related Literature

1. Emotional Intelligence and Leadership: Goleman, D. (1995). "Emotional Intelligence: Why It Can Matter More Than IQ." In this seminal work, Goleman introduces the concept of emotional intelligence and explores its implications for leadership. He argues that leaders with high emotional intelligence are better equipped to handle the challenges of leading diverse teams.
2. The Impact of Emotional Intelligence on Communication: Mayer, J. D., & Salovey, P. (1997). "What is Emotional Intelligence?" The authors provide a foundational understanding of emotional intelligence and its components, emphasizing its role in effective communication. Leaders with high EI are better able to navigate and resolve conflicts through empathetic communication.
3. Emotional Intelligence and Decision-Making: Jordan, P. J., & Ashkanasy, N. M. (2006). "Emotional Intelligence, Emotional Self-Awareness, and Team Effectiveness." This study explores the connection between emotional intelligence, especially emotional self-awareness, and effective decision-making within teams. Leaders who can harness their emotions make more informed and strategic decisions.
4. Team Collaboration and Emotional Intelligence: Goleman, D., Boyatzis, R., & McKee, A. (2002). "Primal Leadership: Realizing the Power of Emotional Intelligence." The authors delve into the impact of emotional intelligence on leadership styles and how leaders can create resonant teams. The study emphasizes the role of EI in fostering positive team collaboration.

Methodology

This review integrates findings from a comprehensive analysis of peer-reviewed articles, books, and empirical studies on the intersection of

emotional intelligence and leadership effectiveness. This research paper is basically descriptive and content analytical in nature. The data used in it is purely from secondary sources according to the needs of the study. Information collected from the theses, publications of journals, articles, books and educational websites, is extensively used.

Discussions and Findings

The synthesis of literature reveals a consistent positive correlation between emotional intelligence and leadership effectiveness. Leaders with high EI demonstrate improved communication, decision-making, and team collaboration, ultimately contributing to organizational success. EI helps leaders navigate interpersonal relationships and communicate effectively (Goleman, 1995). Leaders with high EI are better equipped to make sound decisions, considering both rational and emotional aspects (Salovey & Mayer, 1990). EI contributes to effective conflict resolution by helping leaders manage emotions and understand others' perspectives (Brackett & Mayer, 2003). Leaders with high EI foster a positive team environment, enhancing collaboration and productivity (Goleman, Boyatzis, & McKee, 2002). EI helps leaders adapt to change and navigate uncertain situations more effectively (Ashkanasy & Daus, 2005). Leaders with high EI contribute to increased employee engagement and job satisfaction (Jordan & Ashkanasy, 2006). EI is positively correlated with overall organizational performance (Van Rooy & Viswesvaran, 2004). Goleman (2000) emphasizes the importance of self-awareness and social skills in leadership, arguing that leaders with high EI communicate effectively, actively listen, and understand diverse perspectives. This fosters trust, collaboration, and a positive work environment. Bar-On (2000) suggests that leaders with high EI possess strong interpersonal skills, empathy, and conflict resolution abilities. They can build rapport with team members, offer support, and navigate complex situations, ultimately strengthening team dynamics and fostering effective conflict resolution. Day et al. (2014) found that leaders with high EI display positive emotions, set clear goals, and provide constructive feedback, leading to increased employee motivation and engagement. They create an environment where employees feel valued and inspired to excel. Goleman et al. (2002) conducted a longitudinal study on leadership effectiveness and found that leaders with high EI contributed significantly to improved organizational performance, measured by factors like customer

satisfaction, profitability, and employee turnover. Emotional intelligence does not impact transformational leadership and only partially affects transactional leadership and operational effectiveness. Emotional intelligence has a strong and positive impact on operational effectiveness when mediated by organizational citizenship behavior, which does have a strong and positive predictive power on operational effectiveness.

Conclusion

This comprehensive review underscores the significant influence of emotional intelligence on leadership effectiveness. Organizations and individuals invested in developing emotionally intelligent leaders are likely to experience enhanced team dynamics, improved decision-making processes, and overall organizational success. The synthesis of literature consistently demonstrates a positive correlation between emotional intelligence and leadership effectiveness. Leaders with high levels of emotional intelligence exhibit enhanced capabilities in various facets of leadership, contributing to positive outcomes for both individuals and organizations. Several studies have shown a positive association between EI and leadership effectiveness. Leaders with higher EI scores tend to exhibit stronger leadership skills, including effective communication, adaptability, and conflict resolution Gavhad, S.B. (2023). Leaders with a high level of emotional intelligence excel in communication. They are adept at perceiving and understanding emotions, leading to more empathetic and effective communication. This enhanced communication positively impacts team dynamics, employee engagement, and organizational culture. Emotional intelligence, particularly emotional self-awareness, is linked to improved decision-making within leadership roles. Leaders who are attuned to their own emotions and those of others make more informed and strategic decisions. This has implications for problem-solving and navigating complex organizational challenges. Emotional intelligence fosters positive team collaboration. Leaders with high EI can create resonant teams by effectively managing interpersonal relationships, motivating team members, and promoting a positive emotional climate. This, in turn, contributes to higher levels of team cohesion and performance. The concept of resonant leadership, as highlighted by Goleman, Boyatzis, and McKee (2002), emphasizes the positive impact of emotional intelligence on leadership styles. Leaders who exhibit resonant leadership, characterized by emotional intelligence,

contribute to a harmonious and motivated organizational environment, leading to long-term success. Given the clear link between emotional intelligence and leadership effectiveness, there is a compelling argument for investing in the development of emotionally intelligent leaders. Organizations can implement targeted training programs and initiatives to enhance leaders' emotional intelligence, ultimately fostering a more positive and productive workplace. Emotional self-awareness emerges as a crucial component of emotional intelligence in the context of leadership. Leaders who possess a deep understanding of their own emotions are better positioned to regulate them effectively, leading to improved decision-making and interpersonal relationships. This comprehensive review underscores the significance of emotional intelligence in shaping effective leadership. It provides a foundation for organizations to recognize the value of emotional intelligence and consider its integration into leadership development initiatives for long-term success and sustainability. (Santa R, Moros A, Morante D, Rodríguez D, Scavarda A. 2023).

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Chapter 15

Beyond the Screen: Navigating the Complex Interplay of Social Media and Family Dynamics

ALFISHAH RAHMAN

Abstract

The impact of social media on family interaction is a critical topic for research. This paper explores how the pervasive use of social platforms may contribute to a decline in face-to-face communication within families, potentially affecting interpersonal relationships and overall family dynamics. The paper delves into the various ways social media may influence family bonds. It investigates the potential displacement of quality time spent together, the impact on communication patterns, and the role of social media in shaping family narratives. By addressing these aspects, the research aims to contribute valuable insights into the complex interplay between social media usage and the dynamics of family life. It investigates how social media might introduce distractions, contribute to misunderstandings within the family. Additionally, it provides some mitigation strategies which will help in reducing the negative impacts and improving family dynamics.

Introduction

The advancement of technology and the growing use and adoption of social media platforms have changed how people communicate and interact. In today's times, social media has brought a lot of change in individual personalities and transformed family dynamics. These platform's widespread reach and ease of use have led to serious worries about the possible deterioration of conventional family ties. This article explores the complex effects of social media on family relationships, highlighting how it modifies family narratives, interferes with quality time, and affects communication patterns.

The interaction of families plays an important part in the foundation of familial connections, such as how family members communicate with one another, share their experiences, and encourage one another. This interaction entails face-to-face communication, sharing of activities,

and problem-solving abilities. However, the effect of social media has harmed their personal space by replacing this practice of family engagement.

The Incorporation of social media into our everyday lives has created new opportunities to communicate and connect with others, but it has also had an impact on the quality of family interactions. The constant use of screens or digital gadgets has reduced families' quality time or face-to-face interaction, resulting in the weakening of family bonds.

Social media has transformed communication, making it simple for families to stay in touch regardless of distance. However, this easiness has come at a cost. For example, the widespread use of social media has resulted in distractions at family gatherings, lowering the quality of interactions. Family dinners and casual discussions have become far less common as digital information has become more prevalent.

It has also been shown that excessive usage of social media can lead to detrimental consequences, particularly for young minds. According to research, increased use of social media has linked to a drop in academic achievement. Increased isolation has an impact on people's mental health. These social media platforms use algorithms to deliver more content on an individual basis, keeping individuals engaged and increasing their time spent on these platforms, resulting in a decline in interaction with family members.

Literature Review

This research review will provide detailed insight into how social media affects family relationships and dynamics. Kuss and Griffiths (2017) conducted a study on the negative effects of social media on young adolescents, such as academic deterioration and social isolation. This study also discusses how excessive usage of social media might result in less face-to-face connection with family members, which may lead to family conflict and, as a result, undermine the family's emotional connection.

Subsequent research has demonstrated the significance artificial intelligence (AI) plays in the social media experience. People can now get personalized material thanks to AI advancements, increasing engagement and potentially closing the gap between in-person and virtual meetings. According to Gillis (2023), the integration of artificial intelligence (AI) into social media has created new difficulties in preserving family bonds since users are constantly

exposed to individualized content, which has distanced them from their immediate relatives.

Theoretical Perspectives: Attachment and Cognitive Dissonance

To understand how family dynamics are impacted by social media, theory is required.

John Bowlby's Theory

Strong relationships between parents and children are crucial, as demonstrated by theories like **John Bowlby's** attachment theory. He observed a variety of lifestyles in the parents and kids, including disorganized, avoidant, anxious-ambivalent, secure, and anxious-ambivalent. These lifestyles all relate to how people relate to others throughout their lives. Secure attachment is essential for a child's healthy emotional and social development. However, excessive social media use can interfere with the development of secure attachment, which lowers the amount of time parents and children spend together in person and lessens quality family time.

Assume a family in which both the mother and father are on their phones or on social media while eating or spending time with their children. This would make the youngsters feel ignored and unappreciated because the time that should be spent with them has been spent on internet activities. Later, this parental style will cause the children to feel distant; they will desire to rely on themselves and be emotionally aloof from their loved ones. It can impede the development of secure bonds and promote anxious-ambivalent attachment types. Over time, these individuals may develop avoidant attachment styles and begin to feel uncertain about their relationships. This example shows how excessive usage of social media can interfere with important bonding processes that are essential for positive family dynamics and emotional growth.

Leon Festinger's Theory

Another theory proposed by **Leon Festinger**, called cognitive dissonance theory, provides another perspective on how social media has affected family connections. When a person holds opposing views or attitudes, they experience discomfort, which leads to cognitive dissonance. Similarly, even when a person is aware of the negative effects of social media on their family relationships, they find it difficult to reduce the amount of time they spend on their devices

because this has subconsciously developed an addictive character. These situations cause problems for families because they justify their increased usage of social media while ignoring its harmful effects.

Consider a parent who is fully aware that the amount of time he spends on social media has a significant impact on their relationship with their children. They understand that their continual usage of mobile phones and social media during family time emotionally distances them and reduces genuine discussion amongst families. Even when parents are aware of the issues, many

find it difficult to restrict the use of social media. The regular notifications and their need to stay updated have given them these addictive properties. This is known as cognitive dissonance, and it occurs when a parent's action contradicts their belief in the value of the family tie. Parents experiencing this kind of dissonance may even decide to change their behavior, believing that the situation is not that dangerous and that they need to rely on social media for all the updates. The unresolved dissonance keeps the parent locked between their need to foster real-world interactions and their need for online connection, which may impact family dynamics.

Factors Affecting Family Dynamics in the Age of Social Media

What is “dopamine paradox?”

Dopamine is a neurotransmitter which is associated with pleasure and reward. It is released when individuals engage in activities that bring them excitement and happiness, including social media use. The constant exposure to stimulating content on social media can lead to a dopamine overload, making it difficult for individuals to find satisfaction in other, less immediately gratifying activities, such as spending quality time with family.

Many variables contribute to the changing dynamics of family interactions in the age of social media. One such element is the “dopamine paradox”. So, what precisely is the Dopamine Paradox?

It is a neurotransmitter released or activated when we experience pleasure or receive rewards. It is related to people engaging in activities that make them joyful and thrilled, such as social media. Dopamine levels rise dramatically when people are exposed to stimulating information that makes them happy. As a result, people are

less happy with others, spending more time on social media and less meaningful time with their families.

Another factor is “reduction in patience and attention span,” which is primarily due to rapid pleasure provided by social media’s algorithm. Members may develop habits, such as becoming less tolerant of lengthy conversations and refraining from engaging in activities that do not provide immediate rewards. This will result in situations in which people increase their online engagement while not supporting one another in real life, reducing the quality of support that a family requires.

Mitigation Strategies for Enhancing Family Dynamics

To address the detrimental impact of social media on family relationships, it is critical to implement initiatives that promote healthy connections within families. One strategy could be for parents to set up ‘Device free’ time during the day when no one is permitted to use their phones and instead focus on spending quality time with one another. This approach can help families preserve their relationships.

Another strategy could be to establish communication rituals, such as praying together or eating together. According to research, these rituals are important because they help keep families together, give social support, and pass down values to future generations. Outdoor activities and video conferences can also help to preserve strong family bonds despite the prevalence of digital distractions.

Another such method is to create a space where all family members can freely share their feelings about the impact of social media on family relationships. This method will make all members of the family feel heard and understood, potentially creating a supportive environment for everyone.

Conclusion

Because social media is so important in today’s society, its impact on parent-child relationships should not be underestimated. Although these digital platforms give numerous potential for new connections, they also have a significant impact on how families bond. One should comprehend and examine all of the benefits and drawbacks of these social media sites, as well as devise techniques to mitigate the adverse consequences and keep the family connection strong and intimate.

When individuals prioritize online interactions over in-person family time, it can create feelings of isolation, miscommunication, and emotional distance within households. Therefore, finding a balance between virtual connectivity and real-life family engagement is crucial. By setting healthy boundaries and consciously prioritizing meaningful family interactions, individuals can enjoy the advantages of social media without compromising the strength of their familial relationships.

This chapter gives a message how it is very important to have a healthy balance between the online and offline interaction between families, where one should focus more on health and wellbeing of families. Building deep ties in the home continues to be a crucial priority as families are adapting themselves in the fast moving phase of internets. By establishing limits on social media use, families can preserve their emotional connections while still benefiting from the digital world.

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Chapter 16

A Way Forward towards Sustainability in the Era of Artificial Intelligence in Achieving Sustainable Development Goals (SDGs)

NAGHMA

Abstract

In the words of Mahatma Gandhi there are plenty of resources on earth to fulfill each person's need but not fulfill their greed. When he said this statement he might know very well that coming generation will exploit all resources on the name of development and some extinct his speculation was right. When we see today's generation we find such type of mentality who exploit all natural resources without thinking and care about our future (next) generation. We live in an era of Artificial Intelligence where Artificial Intelligence tried to replace Human Intelligence or we can say that it somehow replaced Human Intelligence. In this situation a major question arises that how we maintain a good balance between Artificial Intelligence (AI) and Sustainable Development Goals (SDGs). We need to consider this question because it dealt with the sustainability of our upcoming generation. Artificial Intelligence is the assistant that sustainable development needs to plan, execute, advice and planned the prospect of our earth and its sustainability more efficiently. Technology like AI will help us build more resourcefully, use resources sustainably and diminish and manage the waste we generate more effectively, among many other materials. The Sustainable Development Goals (SDGs) are a set of 17 interconnected global goals that serve as "blueprint for a better and more sustainable future for all". Uniting AI with sustainable development will facilitate all productions to design an improved planet, addressing current needs with no compromising future age groups. This chapter will try to evaluate risk which is the first step toward ensuring that AI breakthroughs are egalitarian and long term. We only have the power and understanding to design the next generation of AI technologies that are kinder and more sustainable if we acknowledge flaws.

Keywords: Sustainability, Sustainable future, Human Intelligence, Egalitarian, AI Technologies.

Introduction

The emergence of artificial intelligence is shaping an increasing range of sectors. For instance, AI is expected to affect global productivity equality and inclusion, environmental outcomes and several other areas both in short and long term. Reported potential impacts of AI indicate both positive and negative impact on sustainable development. The world has entered a critical state of climate crises as our days of discussing global warming and climate change are over and we need to move action. More than three decades after the notable report, the world continued to struggle with the need to transform human activities to ensure long term existential survival, although the challenges are exceedingly complex and all our technological expertise to develop immediate and long term solutions Among the most promising possibilities is Artificial Intelligence (AI) in which machine can learn from experience, adjust to new inputs and perform human like tasks. AI technologies offer three main benefits. First, AI permits the automation of important but repetitive and time consuming tasks, allowing human to focus on higher value work. Second, AI reveals insights that are otherwise trapped in massive amounts of unconstructed data once required human management and analysis, such as data generated by videos, photos, written reports, business documents, social media posts, e-mail or message. Third, AI can integrate thousands of computers and other natural resources to solve the most complex problems. Consequently, AI capabilities should be leveraged to find ways to mitigate the climate crisis. To achieve this, rigorous investigation is essential to identify how AI solutions can combined with human emotions, cognitions, social norms, and behavioral responses. We argue that AI can support the derivation of culturally appropriate organizational processes and individual practices to reduce the natural resource and energy demands of human activities. The true of value of AI will not be in how it enables individuals and society to reduce its energy, water, and land use intensities. Rather, the true value of AI will be realized at a higher level, in how it facilitates and fosters effective environmental governance. Environmental governance, the formal and informal rules that govern human behavior in decision making processes as well as the decision themselves, dictates how society determines and acts on

goals and priorities for managing natural resources. However, competing social values often make environmental governance controversial. Its long-term effectiveness depends on reducing the gap between science and policy. AI has the potential to overcome information asymmetries and the bias of human emotions, two factors that create barriers to developing solutions for environmental sustainability. Leveraging AI to conduct large-scale pattern-recognition with vast amount of data gives society the opportunity to leapfrog, expedite, or morph its way of thinking and devising science based solutions and policies for environmental problems. But, going beyond current thinking pattern to devise science based solutions and policy requires a paradigm shift. Paradigm intermingle training, education, governmental policies, and cultural variables that guide and constrain behaviors. In the current human solution paradigm, short-term, self-interested reasoning tends to dominate decisions about how to confront water, energy and food supply challenges. Environmental sustainability is so complex and involves so many trade-offs that problems are frequently reduced to simplistic sufficient explanations in which decision makers default to game theoretical forms of interactions where self-interest is in play. Consequently, if we adhere to the current self-interested reductionist paradigm, we will devise only irrational approximate solutions often under the guise of rationality. Alternatively, AI offers humans the opportunity to think plan and execute holistic solutions to environmental degradation and the climate crisis, free from reductionism and the self-interest of individuals and small collectives. Although, humans create the originating structure of AI applications, as the machines consumes and learns from vast amount of data, the resulting decisions (informed by objective data and free of cognition biases and emotions) will be different from those taken by expert humans. Although, AI solutions are inherently technical, their success will be determined by how well they navigate and influence psychological, sociological, and organizational factors that currently impede human progress in this area.

AI's Impact on the Environment

There is an increasing number of AI applications in the environmental sector, including those in energy (e.g. smart grids), agriculture and water management. Recent advancements in Internet of Things technology, as well as AI algorithms in vision and sensor fusion, have

made this viable. The introduction and possible adoption of Electronic Vehicles and smart appliances, for example, could improve the efficiency and reliability of power generation in a smart city environment. Furthermore, AI could help incorporate renewable energy into smart networks by effectively controlling risk and bridging supply-demand gaps. Some of these AI technologies, on the other hand, can be computationally expensive. In countries where dirty coal is still used to generate electricity benefits can be overshadowed by pollution. According to estimates, overall electricity demand from ICT alone might consume up to 20% of global energy by 2030, up from 1% today. As a result, establishing a more efficient and renewable-energy-based data center, as well as infusing human knowledge into current models through priors, is critical for green growth. This is because human brain uses far less energy (and does so more efficiently) than current AI models, and improving on this integration (e.g. physics informed deep learning) could be beneficial not only to the environment but also to communities at large, who are particularly vulnerable to AI-system-based pollution. The final set of SDGs is concerned with climate action, life under water, and life on land (SDGs 13, 14 and 15). For the environment category, we identified 25 targets (93%) where AI could be useful. The ability to analyze large-scale interconnected databases and devise coordinated actions targeted at environmental preservation could be one of AI's benefits. In the case of SDG 13 on climate action, there is evidence that improvements in artificial intelligence will aid in the knowledge of climate change and the modeling of its potential consequences. Furthermore, AI will help low carbon energy system that incorporate a high level of renewable energy and energy efficiency, all of which are required to combat climate change.

AI and Societal Outcomes

Unfortunately, complicated AI systems are still expensive and lower income families and people with disadvantaged backgrounds may not be able to afford them. If the government fails to regulate how the benefits of AI are dispersed among the various stakeholders the likelihood of increased inequality will increase. Big producers, for example, may gain but smallholder farmers may be left behind because they cannot afford an expensive AI system that can increase their output and productivity. Furthermore, existing racism, gender stereotypes, xenophobic tendencies, and hate crimes could be

amplified if there isn't enough transparency and diversity. Systematic racism and bias can still be found in AI systems, particularly in the NLP and Computer Vision sectors. This is because the data used for training is already tainted with societal biases, and without an intentional de-biasing method during data engineering the once objective machine may inherit our subjective and irrelevant opinions. Transparency and diversity are thus essential for keeping our models as objective as feasible. One option would be a decentralization procedure in which AI technologies are implemented by teams with diverse cultural, ethnic, and gender backgrounds. Human expertise must be embedded in the construction of AI models, in addition to more efficient and renewable energy based data centers. Aside from the fact that human brain consumes far less energy than what is used to train AI models, the available knowledge introduced in the model (for example, physics informed deep learning) does not need to be learned through data intensive training, potentially lowering the associated energy consumption. Although, AI enabled technology has potential to accelerate the implementation of the 2030 Agenda, it may also exacerbate inequities, which might stymie progress on SDGs 1, 4 and 5. In the case of economic, an instance of using AI to achieve better sustainability is the technology that has been developed in tunnel boring machines, which are particularly multifaceted equipment. A crash can stop all or a momentous part of subversive work in its track.

Conclusion

The SDGs are a powerful lens for looking at internationally agreed goals on sustainable development, and they represent a leap forward in the representation of all spheres of sustainable development, including human rights, social sustainability, environmental outcomes and economic development, when compared to the Millennium Development Goals (MDGs). However, because the SDGs are a political compromise, they may be restricted in their ability to capture some of the more complicated processes and cross-interactions across targets.

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Chapter 17

The Impact of New Media on Youths in the Age of Globalisation: A Study of Youths in Aligarh

DR. FAIZAN HAQUE

Abstract

This paper aims to understand how new media (Facebook, Instagram, Twitter, WhatsApp, and Snapchat) have impacted the young generation in India. Globalisation has greatly shrunk the world, and the availability of new media globally has exacerbated its impacts. All programs, websites, or blogs that allow people all over the world to interact online, exchange ideas, and make video calls, among many other functions, are considered new media. Almost half of the world's population is thought to be active on Facebook and Instagram. Social media has a significant influence on society and stakeholders, and it fosters the creation of virtual communities. New media began as an interaction between people using new forms of technology, and the conversations became increasingly public. Marx said that a change in mode of production (technology) would bring about a change in social relationships, and since a couple of decades, we have been observing how our relationships have changed. It affects our social life both positively and negatively. It also has to be responsible for the rise of mental health problems among young people since it has so thoroughly intoxicated the more youthful members of society that they possess complete dependence on these platforms. This paper is primarily based on the information and content analysis gathered through a critical analysis of available related literature and interviews with youths who are more active and access more frequently on social networking sites.

Keywords: Globalization, New media, Technology, Society, Virtual Community, Young Generation

Introduction

The impact of new media on social transformation must be crucial in both academic research and public discussions concerning globalisation and youth. Media like the Internet, computers, mobile phones, etc. are frequently regarded as one of the main drivers of the

present reconfiguration of both the social and cultural landscape in sociological and cultural assessments of globalisation. A few of the most popular and extensively used digital media platforms are Snapchat, WhatsApp, Facebook, Twitter, and many more. It is estimated that almost half of the world's population is now active on Facebook and Instagram. New media is one of the most powerful emerging tools across the globe. New media facilitate an increased interconnectedness across vast distances and temporal flexibility in social interaction. Applications, websites, and blogs that offer a range of functions that allow people worldwide to connect, communicate, and share information online are all considered new media (Verma, 2018). Social networking sites are web-based services that allow users to create their own profiles with their own list of users and connect with them in a completely public forum that offers features like video calling, blogging, chatting, mobile connectivity, and sharing of photos and videos. These websites have become addictive for young people, who find it hard to focus on their work and instead choose to sign in and visit different websites. While some have benefitted from these websites, others are finding their usage to be intellectually challenging. Although people have created their own boundaries on when and how they can access and use these websites, this paper observes that only a handful of individuals ever engage with them.

Furthermore to being crucial instruments for introducing young people worldwide to global culture, new media platforms like Facebook, Instagram, WhatsApp, and Snapchat can also serve as a venue for resistance networking. Researchers from Denmark, France, and Israel discovered that young people in those nations prefer transnational fiction and film content, especially American "soapies," as well as a new sense of transnational social space made possible by the Internet, as a result of media-induced globalisation processes. (Drotner, Lemish, and others, 1998). One of the most highly debated subjects after the fall of communism is the idea of globalisation. Global markets and advancements in technology have long been linked to the rapid pace of globalisation. On the one hand, universalism, unity, integration, homogeneity, and synchronisation are all in vogue. However, there is also a tendency towards particularism, localisation, heterogeneity, distinction, and diversity, all of which are harmful to development.

Young people use social networking sites for longer than usual in order to download photos, go through updates, find entertainment, and

communicate with pals in order to stay in touch. More young people than ever before are creating a worldwide culture that emphasises participation, communication, and democracy. Youth and globalisation are closely related, whether it is by fostering international cooperation, fostering economies, advancing peace and nonviolence, or providing educational possibilities. The arts, science, communication, culture, and peace-making are all easily able to transcend national boundaries, and today's youth are more interdependent than ever before. They are changing the world by setting a strong emphasis on freedom, equality, and democracy. Determining whether social media platforms have affected youth participation and academic performance is crucial given the scope of study on their use in the global system. This paper will therefore be able to review the available literature to study and present both the positive and negative impacts of online networking websites on globalisation and youth.

Literature Review

Kuppuswamy S., Narayan PB. (2011) tries to portray that social networking sites such as Facebook, Myspace, and Twitter are gaining popularity with the pace of time, and due to their attractive features, the youth of today's generation is fascinated by them. The study challenges the idea, asserting that young people are diverting themselves from their education and careers as a result of social networking sites' but, on the contrary, they are also forming cordial and social relationships with the people in their immediate social circle and ties relations with the world that revolves around them.

Khan S. (2011), in his paper, 'Impact of social networking sites in the changing mind sets of youth on social issues' argues that men spend more time on social networking sites as compared to women to review these social issues, and yet women are very sensitive to issues like these existing in the world. The young people participate actively and speak up to share their thoughts and opinions on the social issues that are being discussed on these websites. Additionally, the results show that although the youth respond to these events, they do not continue to engage in conversations outside of the internet and eventually forget about them after they sign off. Thereby, these sites prove to be a boon to the youth in terms of spreading awareness about these issues that arise. Thus, in terms of raising awareness of these concerns, these websites are beneficial to young people.

R Sumit (2005), in his book 'Globalisation, ICT, and Developing Nations: Challenges in the Information Age,' emphasised the need for NGOs to fill the vacuum created by the withdrawal of the state. According to the author, nongovernmental organisations are becoming more and more significant in observing, challenging, and allocating funds to support national and international policies that address the particular requirements of the underprivileged and marginalised in developing nations.

Qureshi M. U. (2006), in his book 'Elements of Social Evolution' claims that the process of globalisation has generated universal discontent, and disenchantment prevails not only in the developing world but also in the developed world too. The author expressed the need to analyse what lies at the root of such discontentment and opines that the problem of globalisation must be investigated from every angle.

Kumar Raj (2000), in his article 'Globalisation and Dalit Culture,' argues that Dalits need globalisation because they want to be a part of the mainstream. He points out that Dalits want openness because their rich cultural heritage has been submerged, and globalisation will make them come out of the forced cultural silence and speak to the world. According to the author, Dalits are not opposed to globalisation; rather, they are against multinational corporations' disregard for the basic necessities of the impoverished. Dalits while their attention is focused on the consumer demands of the upper caste or class. In the end, the author urged all Dalits to accept and participate in globalisation rather than fight against it.

Objectives

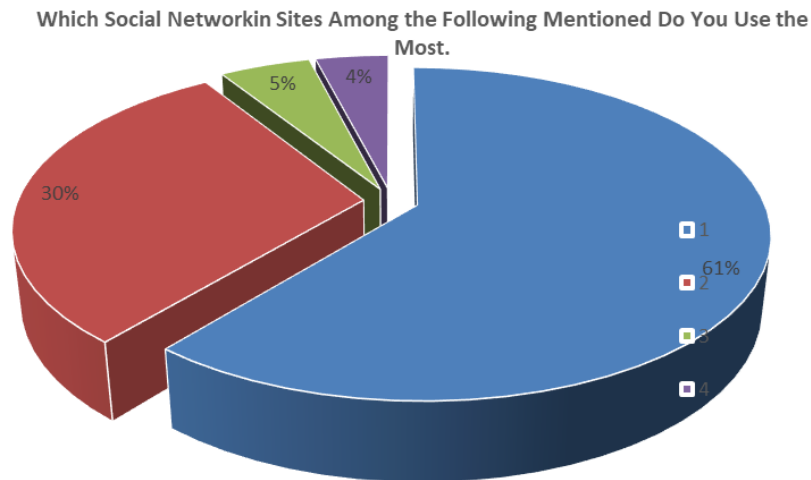
- To examine the usage of specific social networking sites by the youth.
- To analyse the credibility of the information received from social networking sites.
- To understand the pros and cons of social networking sites and globalisation for youth.
- To study the influence of social networking sites and globalisation on the personal and professional lives of youths.

Hypothesis

- Social media sites and globalisation are more of a demerit than merit if both parameters are evaluated.
- The youth are more inclined towards fields of entertainment rather than relevant information-derived sources.
- The participation of youth is invisible in social gathering websites due to the overutilization of new media.

Research Methodology

This paper incorporates a quantitative approach to the study of the research objectives. Sampling has been done effectively from reliable sources and complemented by qualitative insights from interviews or questionnaires. The groundwork of the research involves gathering data on new media, globalisation, and youths from books, well-known websites, surveys, publications, and news outlets. The present study is based on the secondary data collected from surveys, questionnaires, and various other sources and the techniques to be used in data analysis, keeping in view the objectives of the research. The tool that had been employed to work on the data collection was particularly questionnaires, where the questions were closed-ended, along with the usage of tools such as pie charts. A survey was conducted in order to target the age bracket (15 to 24). The sample had been taken mainly from Aligarh city. They were asked a total of 10 questions. On being asked which social networking site the target audience uses the most, 61% responded that Facebook holds the maximum share amongst the rest. 30% responded to Instagram, 5% responded to Twitter, and only 4% responded to LinkedIn, thereby proving that the majority of the audience's share is inclined towards the platform of social utility that connects them with their friends and peers who live around them rather than a professional platform that offers them an opportunity for professional networking.

Figure 1

As figure 1, shows on being asked which social networking site the target audience uses the most, 61% responded that Facebook holds the maximum share amongst the rest. 30% responded to Instagram, 5% responded to Twitter, and only 4% responded to LinkedIn, thereby proving that the majority of the audience's share is inclined towards the platform of social utility that connects them with their friends around the world.

Users of various Networking Sites

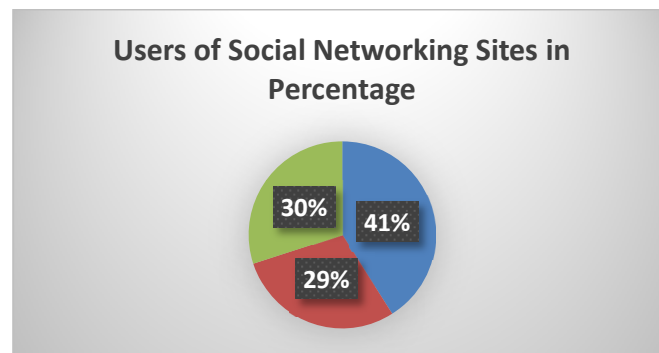


Figure-2 shows that when respondents were asked about the amount of time they spend on social networking sites a day, the majority spent more than 3 hours, for a total of 41%, whereas 29% spent 1 to 2 hours

and 30% spent less than an hour on these sites, indicating that a major part of our youth spends more than 3 hours accessing social networking sites a day, thereby highlighting the extensive impact of social networking sites on the youth on the grounds of their ability to attract a large number of people's time.

Purpose of Using Social Networking Sites by the Youth

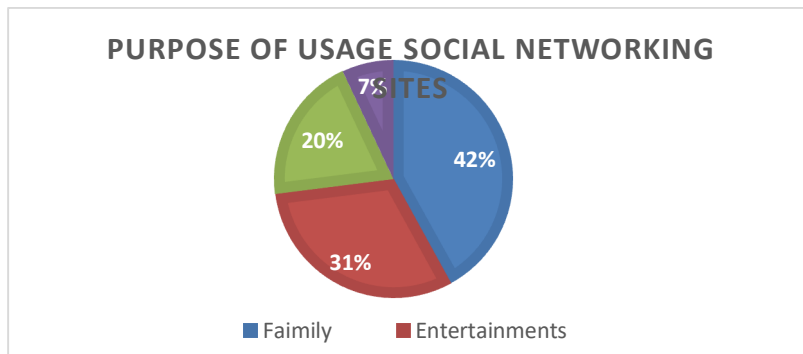


Figure-3 Shows accessing of social networking sites. In order to know about the kind of information the youth usually derives from these social networking sites, 42% responded to updates from family or friends, 31% sought out these sites as a source of entertainment, 20% derived information about general awareness, and only 7% looked up them as a source of job-related information. The data evidently shows the inclination of the youth towards an urge to know what goes on in their near and dear ones's lives. This, in a way, keeps them connected but simultaneously leads to a loss of focus towards their own goals since only a small proportion of the youth seeks interest in gathering relevant information pertaining to jobs and general awareness.

Impact of New Media on Globalization and Youth

New media has both negative and positive impacts on globalisation and our youth today. It is beneficial because it is primarily responsible for diffusing different cultural styles around the world and creating new global hybrid styles in fashion, music, consumption, and lifestyle. It bridges the gap between friends by allowing a person in India to connect and communicate with friends in the United States; it helps to close the distance between friends and families. As the outcome, interpersonal relations are strengthened and improved among the people. Furthermore, young people can create social media groups and pages focused around their careers, religious beliefs, and other aspects

of their lives, which fosters greater connections and expands prospects for their specific areas of interest. This can even lead to more employment opportunities being created for unemployed youth. According to the numerous interviews conducted by various sources, a number of young people claim that social media platforms changed their lifestyle by making their everyday activities more efficient, enjoyable, and easier.

But on the negative part, it is said that social media is like giving a monkey to a sharp knife, which can lead them to hurt themselves. Hatred, anonymity, and arguments between communities have been a serious issue in India as well as in other parts of the world. Some politicians, sociologists, and cultural experts believe that the government should regulate new media networking sites. A BBC News study claims that since young people typically spend the majority of their time on these social media websites, it limits and reduces the frequency of face-to-face contacts among them. According to a study analysing numerous research conducted by different researchers, isolation from society can have a variety of negative impacts on young people, including mental, emotional, physical, psychological, and behavioural issues. This can in turn lead to anxiety, depression, stress, and a variety of other issues. It also leads to misspellings and improper use of words and tenses through the use of short forms and abbreviations. This has a significant adverse effect, especially on students and youths, as it immediately affects their language skills, contributing to inadequate results.

Finding and Conclusion

Over the past two decades, new media sites and globalisation have become an increasingly significant part of young people's lives, bringing both new opportunities and challenges to society. As the use of new media, it will be crucial to establish evidence-based strategies for promoting safe and secure social media usage among youngsters and to access and use these new media platforms effectively for diffusing different cultural styles around the world and creating new global hybrid styles in fashion, music, consumption, and lifestyle. Since a person living in India may connect and communicate with friends around the world, it assists in reducing the gap among relatives and close friends. The purpose of this study is to look into various activities and methods to minimise the amount of time spent on unnecessary activities and communications. Today, youth are also

indulging in much destructive, harmful, or fake propaganda related to religious and sociocultural practices. They also indulge and engage in promoting fake information, videos, news, and pictures that lead to communal or religious violence and also promote inappropriate debate and discussion. For this reason, they were also trapped in the hands of IT and cyber cell organizations. This is in contrast to the previous pattern of policy suggestions that focused on socio-cultural and economic obstacles that support family life. Young people today could benefit from holistic approaches and validated character to help them overcome the challenges of using new media websites, to protect themselves from harm, and to use social networking sites in a way that supports their psychological and physical health.

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Chapter 18

India's Reproductive Rights: Legal and Socio-Cultural Crossroads

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Abstract

India's commitment to expanding women's reproductive rights is evident in its evolving legal and policy architecture, most notably reflected in the amended Medical Termination of Pregnancy (MTP) Act, the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, and the Surrogacy (Regulation) Bill. Collectively, these measures aim to protect women's health, promote informed choice, and curb discriminatory practices such as sex-selective abortions. Yet, the effectiveness of these frameworks often remains compromised by entrenched social and cultural barriers, which shape both access to and perceptions of reproductive healthcare.

This chapter focuses on two interrelated dimensions: (1) the contemporary legal and policy framework, analyzing key legislative provisions, judicial interventions, and governmental schemes intended to safeguard women's reproductive autonomy; and (2) the socio-cultural barriers that hinder the translation of these policies into practical realities. Drawing on policy reviews, stakeholder interviews, and case studies from diverse regions, we illustrate how patriarchal norms, family pressures, and persistent stigma can eclipse formal legal protections. Women in rural and marginalized communities are particularly vulnerable, as they frequently face resource constraints, limited health infrastructure, and misinformation regarding their legal entitlements.

By juxtaposing policy ambitions with ground-level realities, the chapter underscores the importance of not only strengthening and fine-tuning India's reproductive healthcare legislation but also addressing gender-based discrimination. Aligned with SDG 5 (Gender Equality), we argue that sustainable change requires a holistic approach: systematic legal enforcement backed by grassroots interventions,

community-based education, and the active involvement of local influencers who can dismantle stigma from within. In doing so, the chapter illuminates the complex interplay between structured reforms and the deep-seated social hierarchies that continue to shape reproductive autonomy. Ultimately, it offers policy recommendations and strategic interventions that recognize the necessity of bridging both the formal legal landscape and the socio-cultural fabric for a more equitable and empowering reproductive rights regime in India.

Keywords: Reproductive Autonomy; MTP Act; Socio-Cultural Barriers; Gender-Based Discrimination; Sex-Selective Abortions; SDG 5 (Gender Equality)

1. Introduction

Reproductive autonomy is widely recognized as a cornerstone of women's rights and is central to achieving gender equality and health equity. Defined as the ability of women to make informed and independent decisions regarding their reproductive health, it is intrinsically linked to human dignity, personal agency, and broader societal progress (Cook et al., 2003). Despite its criticality, reproductive autonomy remains a contested domain in many parts of the world, including India, where socio-cultural complexities, entrenched patriarchy, and systemic inequities continue to shape women's reproductive experiences.

India represents a unique case study for examining reproductive rights, given its dual identity as a nation with progressive legal frameworks juxtaposed against persistent socio-cultural barriers. Policies such as the Medical Termination of Pregnancy (MTP) Act and the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act signify legislative efforts to safeguard women's reproductive choices and reduce discriminatory practices like sex-selective abortions. However, the practical realization of these rights is often hindered by patriarchal norms, stigma, and disparities in healthcare access (Ghosh, 2020). Consequently, analyzing India's reproductive rights landscape offers valuable insights into the interplay of policy, culture, and social equity.

This chapter aims to critically examine the dual dimensions of India's reproductive rights discourse: the legal and policy frameworks governing reproductive health and the socio-cultural barriers that obstruct their implementation. The central argument is that while legal

reforms are essential, their impact is fundamentally constrained without corresponding cultural and societal transformation. By exploring the dissonance between legislative ambitions and ground realities, the chapter seeks to illuminate pathways for more effective interventions.

2. Historical and Policy Backdrop

2.1 Early Developments in Reproductive Health Policies

India's journey toward recognizing and institutionalizing women's reproductive health rights can be traced to its colonial past. During the British colonial era, public health systems were primarily structured around controlling diseases and enhancing productivity rather than addressing individual health needs. Women's health issues, especially reproductive health, were largely neglected, except when tied to broader population concerns (Jeffery & Jeffery, 1988). This focus on population management persisted in post-independence India, shaping the trajectory of reproductive health policies.

After independence, India became one of the first nations to adopt a state-led family planning program in 1952. This initiative marked a significant shift, positioning reproductive health as a critical element of national development. However, early policies primarily prioritized population control over women's health and autonomy, often employing coercive methods such as forced sterilization, particularly during the Emergency period in the 1970s (Srinivasan, 1995). These approaches not only undermined reproductive rights but also perpetuated distrust between the state and marginalized communities, a legacy that continues to affect policy implementation.

2.2 Key Milestones and Shifts

The introduction of the Medical Termination of Pregnancy (MTP) Act in 1971 represented a watershed moment in India's reproductive health policy. This Act sought to provide safe and legal abortion services to women, primarily as a response to the alarming prevalence of unsafe abortions. While progressive for its time, the Act's primary emphasis was on regulating medical professionals and procedures rather than empowering women's choices (Bhate-Deosthali et al., 2013). Over time, amendments to the Act—most recently in 2021—have extended its scope, such as by increasing the gestational limit for abortions in specific cases and recognizing women's reproductive rights irrespective of marital status.

Another critical milestone was the enactment of the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act in 1994, aimed at curbing the practice of sex-selective abortions and addressing India's skewed sex ratios. This legislation introduced stringent measures to monitor diagnostic technologies and penalize offenders. However, its success has been limited by weak enforcement and societal preference for male children, which often circumvents legal restrictions (Ganatra, 2008).

In recent years, policies such as the Surrogacy (Regulation) Bill have further expanded the scope of reproductive legislation, addressing emerging challenges like the commercialization of surrogacy. While aiming to prevent exploitation and ensure ethical practices, the Bill has been criticized for restricting access to surrogacy services to specific groups, thereby reinforcing traditional family structures and excluding marginalized individuals (Majumdar, 2021).

2.3 Socio-Political Influences

India's reproductive health policies have been deeply influenced by socio-political contexts, both domestic and international. The country's engagement with global conventions like the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) has prompted legislative reforms aligned with international human rights standards. Domestically, women's movements have played a critical role in challenging coercive population control measures and advocating for comprehensive reproductive health frameworks (Agnes, 1999).

The evolution of India's reproductive policies reflects a gradual shift from a state-driven, population-focused approach to a more rights-based paradigm. However, these policies remain constrained by historical legacies and socio-political dynamics, necessitating further examination of their contemporary relevance and effectiveness.

3. Contemporary Legal and Policy Framework

3.1 Medical Termination of Pregnancy (MTP) Act and Its Amendments

The Medical Termination of Pregnancy (MTP) Act, enacted in 1971, is one of India's foundational reproductive health legislations. It aimed to reduce the high rates of maternal mortality and morbidity associated with unsafe abortions by legalizing the procedure under specific

conditions. The Act permits abortions under various circumstances, including risks to the woman's physical or mental health, potential fetal abnormalities, and pregnancies resulting from rape or contraceptive failure (Bhate-Deosthali et al., 2013). However, the law's emphasis on physician approval rather than women's consent has been criticized for limiting women's autonomy.

Recent amendments, particularly the 2021 revision, have expanded the Act's scope. Key changes include extending the gestational limit for abortion from 20 to 24 weeks for certain categories of women, including survivors of rape and incest, and removing the distinction between married and unmarried women in cases of contraceptive failure. Additionally, the introduction of confidentiality clauses and the inclusion of medical boards for late-term cases aim to enhance access and address barriers. However, challenges persist, including a shortage of trained healthcare providers and uneven implementation in rural and underserved areas, which continue to restrict women's access to safe abortion services (Ghosh, 2020).

3.2 Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act

The Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act of 1994 was designed to combat sex-selective practices that contribute to India's declining female-to-male sex ratio. The law prohibits the misuse of diagnostic technologies for determining the sex of a fetus and imposes strict penalties for violations. It mandates the registration of ultrasound clinics, record-keeping of diagnostic procedures, and regular inspections to ensure compliance (Ganatra, 2008).

While the PCPNDT Act has succeeded in raising awareness about sex-selective practices, its effectiveness has been undermined by poor enforcement and societal preferences for male children. Many healthcare providers continue to exploit legal loopholes, while cultural norms often pressure families to engage in illegal practices (Bhatia, 2021). The law's focus on punitive measures, rather than addressing the root causes of gender bias, has limited its ability to shift societal attitudes.

3.3 Surrogacy (Regulation) Bill

The Surrogacy (Regulation) Bill, first introduced in 2016 and later passed in 2021, aims to regulate surrogacy practices in India. It permits

altruistic surrogacy for Indian couples with specific eligibility criteria, such as being married for at least five years and unable to conceive naturally. Commercial surrogacy, which had flourished in India, is now banned under the Act. The law seeks to prevent the exploitation of surrogate mothers and protect the rights of children born through surrogacy (Majumdar, 2021).

Despite its intentions, the Bill has been criticized for its restrictive provisions. For instance, it excludes single parents, same-sex couples, and foreigners, thereby reinforcing traditional family structures. Additionally, the ban on commercial surrogacy has led to concerns about the financial vulnerability of women who previously relied on surrogacy for income. Critics argue that the law fails to provide adequate safeguards or support systems for surrogate mothers, limiting its practical impact (Kumar, 2022).

3.4 Governmental Schemes and Health Missions

India's reproductive health policies are supported by several governmental programs aimed at improving accessibility and affordability. The National Health Mission (NHM), launched in 2005, includes the Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCH+A) program, which addresses a range of reproductive health issues, from safe motherhood to adolescent health. Initiatives such as Janani Suraksha Yojana (JSY) provide financial incentives for institutional deliveries, contributing to a reduction in maternal mortality rates (Ghosh, 2020).

More recently, the Ayushman Bharat initiative has sought to expand healthcare access, including reproductive services, to marginalized populations. However, these schemes often face challenges such as inadequate funding, weak accountability mechanisms, and disparities in implementation across regions. For example, rural areas frequently suffer from a lack of infrastructure and trained personnel, further exacerbating inequalities in access to reproductive healthcare (Bhatia, 2021).

3.5 Judicial Interventions and Landmark Cases

India's judiciary has played a pivotal role in expanding the scope of reproductive rights. Landmark cases such as *Suchita Srivastava v. Chandigarh Administration* (2009) have underscored the importance of women's autonomy and privacy in reproductive decision-making. The Supreme Court in this case held that the right to make reproductive

choices is a dimension of the right to personal liberty under Article 21 of the Indian Constitution (Bhate-Deosthali et al., 2013).

More recently, courts have addressed contentious issues such as abortion access for unmarried women and the rights of marginalized groups. Judicial interpretations have often been progressive, expanding the understanding of reproductive autonomy to include the right to dignity, bodily integrity, and equality. However, the judiciary's reliance on effective implementation at the local level often limits the practical impact of these rulings, particularly in rural and underserved regions (Ghosh, 2020).

4. Socio-Cultural Barriers to Reproductive Autonomy

4.1 Patriarchal Norms and Gender Bias

Patriarchal norms deeply embedded in Indian society continue to limit women's reproductive autonomy. Decision-making regarding reproductive health is often dominated by familial hierarchies, particularly by male family members or elders, reducing women's agency over their own bodies (Jejeebhoy & Zavier, 2001). Cultural constructions of motherhood further exacerbate this issue, glorifying women primarily as bearers of children. This pressure to conform to traditional gender roles reinforces the stigma against reproductive choices that deviate from societal expectations, such as opting for abortion or delaying childbearing.

The prioritization of male offspring due to socio-economic and cultural factors exacerbates gender bias, influencing reproductive decisions. The societal preference for sons often pressures women to continue bearing children until a male child is born, undermining the very concept of reproductive choice (Ganatra, 2008). Such biases significantly hinder the effective implementation of progressive laws like the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act.

4.2 Stigma Surrounding Abortion and Contraception

Stigma plays a central role in curbing access to reproductive healthcare services. Abortion, although legalized under the Medical Termination of Pregnancy (MTP) Act, is often viewed through a moralistic and religious lens that deters women from seeking care. Religious beliefs and cultural norms frequently label abortion as immoral, leading to

secrecy and unsafe practices among women who lack access to trusted healthcare providers (Kumar et al., 2021).

Similarly, contraception is stigmatized in many communities, particularly in rural areas. Women face resistance from family members and healthcare providers, who often harbor conservative views about family planning. This reluctance to engage with contraception perpetuates myths and misinformation, leading to unintended pregnancies and unsafe abortions (Pachauri, 2004).

4.3 Economic and Educational Barriers

Economic barriers disproportionately affect marginalized women, particularly those in rural and impoverished communities. The cost of accessing reproductive healthcare, including abortion and contraception, remains prohibitive for many, especially in areas where public healthcare infrastructure is inadequate. Financial constraints not only limit access to services but also exacerbate the vulnerabilities of women dependent on informal or unsafe healthcare providers (Bhatia, 2021).

Educational barriers further compound these challenges. The lack of comprehensive sexual education leaves many women unaware of their reproductive rights or available services. Misinformation about contraception, combined with cultural taboos surrounding discussions of sexual health, limits women's ability to make informed decisions about their reproductive health (Ghosh, 2020).

4.4 Healthcare Infrastructure and Provider Bias

The uneven distribution of healthcare facilities across India creates significant disparities in reproductive healthcare access. Rural areas, in particular, face acute shortages of trained professionals and infrastructure, resulting in inadequate care for women seeking reproductive services (Bhate-Deosthali et al., 2013).

Healthcare provider biases also play a critical role in undermining reproductive autonomy. Providers often project patriarchal and classist attitudes, which discourage women from seeking care or lead to judgmental treatment. Women from lower castes and marginalized groups are particularly vulnerable to discrimination within healthcare settings, which further alienates them from essential services (Ganatra, 2008).

4.5 Intersection of Caste, Religion, and Regional Differences

Caste and religion intersect with gender to create layered inequalities in access to reproductive healthcare. Women from lower castes, such as Dalits, frequently experience systemic discrimination that prevents them from accessing high-quality care. Religious norms can also influence reproductive choices, with some communities imposing restrictions that conflict with the individual's legal rights (Bhatia, 2021).

Regional disparities amplify these challenges, as cultural norms vary significantly across states. For example, southern states like Kerala have higher literacy rates and better healthcare outcomes, while northern states such as Uttar Pradesh and Bihar struggle with poor infrastructure and deep-seated patriarchal norms. These regional variations highlight the need for context-specific interventions to address reproductive healthcare inequities (Jejeebhoy & Zavier, 2001).

5. Discussion: Bridging the Policy–Practice Gap

5.1 Synergy Between Legislative Reforms and Social Change

Despite India's progressive legal frameworks, the gap between legislation and ground realities highlights the inadequacy of laws alone in achieving reproductive autonomy. While the Medical Termination of Pregnancy (MTP) Act, the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, and the Surrogacy (Regulation) Bill provide legal scaffolding, their effectiveness is often hindered by socio-cultural resistance and institutional weaknesses (Bhate-Deosthali et al., 2013). This disconnect emphasizes the need for synergistic efforts that integrate legislative reforms with community-based initiatives aimed at dismantling patriarchal norms, raising awareness, and fostering trust in reproductive healthcare systems.

Empowering local communities is central to bridging this gap. Grassroots organizations, women's collectives, and community leaders play a pivotal role in challenging stigma and misconceptions around reproductive health. These actors can mediate between formal policies and cultural attitudes, ensuring that reforms resonate with local realities and are implemented effectively (Ghosh, 2020). Community-driven education campaigns can complement legislative efforts by fostering dialogue around reproductive rights and addressing deeply ingrained biases.

5.2 Alignment with Sustainable Development Goals (SDGs)

India's reproductive rights agenda aligns closely with the Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being) and SDG 5 (Gender Equality). Reproductive autonomy intersects with numerous other SDGs, including SDG 10 (Reduced Inequalities) and SDG 4 (Quality Education). Ensuring access to safe abortion services, contraception, and comprehensive reproductive healthcare contributes directly to reducing maternal mortality and achieving health equity (United Nations, 2015).

However, progress in these areas requires robust metrics to measure outcomes. For example, indicators such as access to reproductive health services, community-level awareness, and reduction in unsafe abortion rates must be tracked systematically to evaluate the impact of policy interventions. Strengthening accountability mechanisms and investing in high-quality data collection are essential to ensure that India meets its SDG commitments (Ganatra, 2008).

5.3 Balancing Cultural Sensitivity and Universal Rights

Efforts to enhance reproductive autonomy must navigate the delicate balance between respecting cultural contexts and upholding universal human rights. While cultural sensitivity is crucial to prevent backlash and foster acceptance, it should not come at the cost of perpetuating gender-based discrimination or limiting access to essential services. Policies must be adaptable to local contexts while maintaining a strong rights-based foundation (Pachauri, 2004).

Collaborative partnerships can help address this tension. Governments, healthcare providers, civil society organizations, and faith-based groups must engage in open dialogue to align culturally sensitive interventions with reproductive rights. For instance, working with religious leaders to dispel myths around contraception or abortion can facilitate community acceptance and reduce stigma (Jejeebhoy & Zavier, 2001). Simultaneously, empowering women through education and leadership opportunities can shift societal norms from within, creating sustainable pathways for change.

6. Conclusion and Recommendations

6.1 Summary of Key Findings

This chapter has explored the intricate interplay between India's legal frameworks and the socio-cultural barriers to women's reproductive

autonomy. While progressive legislations such as the Medical Termination of Pregnancy (MTP) Act, the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, and the Surrogacy (Regulation) Bill provide a robust foundation for safeguarding reproductive rights, their implementation remains hindered by entrenched patriarchal norms, stigma, and systemic inequities. Women from marginalized communities, including rural populations and lower castes, face compounded vulnerabilities due to economic constraints, limited education, and healthcare provider biases (Ganatra, 2008; Ghosh, 2020). These findings underscore the necessity of addressing structural inequalities alongside legal reforms to ensure equitable reproductive autonomy.

6.2 Policy and Programmatic Recommendations

To bridge the gap between policy and practice, a multi-faceted approach is essential:

- ***Strengthening Implementation Mechanisms***: Improved training for healthcare providers, particularly in rural and underserved areas, is critical to ensuring nonjudgmental and equitable care. Allocating sufficient resources for infrastructure development and establishing transparent accountability mechanisms can address disparities in service delivery (Bhate-Deosthali et al., 2013).
- ***Promoting Education and Awareness***: Comprehensive sexual education must be integrated into school curricula and community programs to address myths, reduce stigma, and empower women with knowledge of their rights and available services. Community-driven awareness campaigns can play a pivotal role in normalizing conversations around reproductive health (Pachauri, 2004).
- ***Engaging Community Stakeholders***: Collaboration with grassroots organizations, local leaders, and faith-based groups can foster culturally sensitive interventions while promoting the universal principles of reproductive rights. Such partnerships are particularly effective in addressing stigma and societal resistance to progressive policies (Jejeebhoy & Zavier, 2001).
- ***Empowering Women's Voices***: Women's collectives and advocacy groups must be actively involved in shaping reproductive health programs and policies. Local governance structures, such as Panchayats, can provide a platform for women to participate in decision-making processes, ensuring that their needs and experiences inform policy implementation (Ghosh, 2020).

6.3 Future Outlook

Achieving reproductive autonomy in India requires continuous efforts to align policy goals with grassroots realities. Future research should focus on evaluating the impact of existing interventions, identifying context-specific challenges, and exploring innovative strategies to enhance access to reproductive healthcare. Interdisciplinary collaboration among policymakers, academics, healthcare providers, and activists is essential to sustain progress and address the evolving needs of diverse populations.

In conclusion, reproductive autonomy is not merely a legal issue but a reflection of broader societal values and power dynamics. Bridging the gap between India's legal frameworks and socio-cultural realities requires holistic strategies that prioritize equity, dignity, and inclusivity. By addressing both structural and cultural barriers, India can pave the way for a more equitable and empowering reproductive rights regime.

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