

Aligning Education and Skill Ecosystems in India: Evaluating the Role of Institutional Policy Frameworks in Human Capital Formation and Economic Transformation

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Abstract:

The demographic dividend in India is an urgent threat to economic transformation, depending on the ability to match education and ecosystem skill sets successfully. Even with several policy interventions such as the National Education Policy (NEP) 2020, Skill India Mission, there has been systemic fragmentation between the formal education systems and the vocational training systems. This paper is a critical review on institutional policy frameworks on education and skill development in India and how the Indian institutional frameworks contribute to building human capital. Based on a qualitative doctrinal and policy analysis technique complemented with secondary data sources, including government reports, international agencies, and new scholarly publications (2020-2025), the paper determines structural gaps, governance obstacles, and policy inconsistency. The paper also suggests a combined model to promote synergy among schools, industry needs, and skill eco system thus leading to inclusive economic change. The results underscore the necessity of institutional convergence, competency-based model of education, and coherence in the policy to mitigate the education-employment gap.

Keywords: Human capital, NEP 2020, Skill India, institutional structures, economic change, education policy, employability.

1. INTRODUCTION

The demographic profile of India, where the large part of the population is comprised of working-age population, is an important chance to experience the growth of the economy because of the effective development of human capital. Nevertheless, the achievement of this demographic dividend is not limited to increasing access to education but depends on the necessity to match educational performance with the skills and competencies that are relevant in the market. In the past, the education system in India has been marked by a high level of focus on theoretical knowledge and learning by credential and in most cases there is a lack of alignment between graduate education and industry requirements. It has resulted in paradoxical situation where much graduate output is being recorded concomitantly with high unemployment and underemployment. As a reaction, the Government of India has launched a number of policy programs, such as the Skill India Mission, Pradhan Mantri Kaushal Vikas Yojana (PMKVY), and more recently, the National Education Policy (NEP) 2020, all of them focused on vocational training integration, encouraging experience learning, and making them more employable. Irrespective of such initiatives, education and skill systems are still siloed with the consequence of disjointed implementation, unequal levels of quality, and lack of mobility between academic and vocational routes.

This alignment has been made more difficult by the institutional environment within which education and skill development takes place in India; there is a high level of overlap and poor coordination between various regulatory bodies and ministries with overlapping mandates. Although other organizations like the Ministry of Education, Ministry of Skill Development and Entrepreneurship, University Grants Commission (UGC) and National Council of Vocational Education and Training (NCVET) may play important roles, the lack of a single and cohesive policy framework can mean the difference between successful integration and failure. Furthermore, the global economy that is quickly changing, becoming digital, automated, and introducing new technologies artificial intelligence and green technologies, requires staff with adaptive, multidisciplinary, and lifelong learning skills. In this scenario, competition and compatibility of education and skill ecosystems leads to being a strategic need in promoting productivity, innovation and inclusive economic transformation. This paper, thus, attempts a critical analysis of the role played by institutional policy structures in the education-skill divide in India, assesses the efficiency with which these structures help in fostering human capital development and finds ways through which a more integrated, responsive and future oriented system can be realized.

2. CONCEPTUAL FRAMEWORK

2.1 Human Capital Formation and Theoretical Foundations

The human capital formation is the theoretical cornerstone of the present study and it can be seen to mean the acquisition of knowledge, skills, competencies, and health qualities that can increase the productivity and economic value of a person. The human capital theory is grounded on the classical theories by Becker (1964) and Schultz (1961), and according to the theory, investments in education and training can be recouped in the form of increased income, enhanced employability, and general economic expansion. In the modern context though, the concept has changed to be more than just formal education to include the development of skills, vocational education, being digitally literate, and lifelong learning. In developing countries like India, the formation of human capital should be viewed in a complex, multidimensional perspective that incorporates the aspects of quality, relevance, and inclusivity. This understanding can be further enhanced by the capability approach, developed by Amartya Sen, that states the role of education and skills to widen the real freedoms and opportunities of individuals and not as a tool of economic productivity.

The formation of human capital as a responsibility in this context is not only based on the amount of education but also its conditioning in accordance with the labour market and the socio-economic realities. The existence of structural inequalities, i.e. differences on gender, territory, and social-economic position, still impact access to quality education and skills in India, consequently, impacting distribution and use of human capital. Also, the transition towards knowledge-based and digital economy has re-established the nature of the skills demanded, with a higher focus put into the cognitive skills, problem-solving, flexibility and technological competence. In turn, the human capital formation should be considered a dynamic and interactive process, which demands systemic collaboration between the education system, mechanism of skills formation, and the industry needs. It is this theoretical foundation that offers the clue to the insight into how the institutional policy frameworks can either support or obstruct the successful process of establishing human capital in India.

2.2 Education–Skill Ecosystem Alignment and Institutional Policy Interface

The second aspect of the conceptual framework is the alignment of education and skills ecosystems which is conceptualized as an interconnected network of formal education institutions, vocational training bodies, industry stakeholders, and regulatory authorities. Ideally, this ecosystem is supposed to be a harmonious and mutually supportive entity where educational curriculum designs are responsive to industry demands, skill training courses become embedded within academic career path, and certification systems permit flexibility and domain mobility. Nevertheless, within the Indian context, the education-skill interface has been traditionally defined as disjointed, where formal education and vocational training

have been running in parallelism and not convergence. Such disconnection has seen a sense of inconsistency in designing the curriculum, unnecessary duplication of institutional effort and an under-impression of the vocational qualification in mainstream education.

The institutional policy frameworks are fundamentally involved in the development of this ecosystem through the provision of the regulatory norms, the rules of governance, the mechanisms of financial support, and the quality assurance standards. It has a number of institutions, including Ministry of Education, Ministry of Skill Development and Entrepreneurship, University Grants Commission (UGC), All India Council of Technical Education (AICTE), and National Council of Vocational Education and Training (NCVET), which poses opportunities as well as threats to coordination. Although current reforms, such as the National Education Policy (NEP) 2020 and credit transfer frameworks, such as the National Credit Framework (NCrF), are meant to help facilitate integration through multidisciplinary education, credit transfer frameworks, and exposure to vocational training, their achievement will rely on the successful implementation and inter-institutional cooperation. This paper formulates the conceptualization of education and skill ecosystems compatibility as a policy coherence, institutional convergence, and engagement in the industry. These dimensions help to assess the role of institutional policies in the process of education to employment transition and, finally, to economic change by framing the discussion of these aspects.

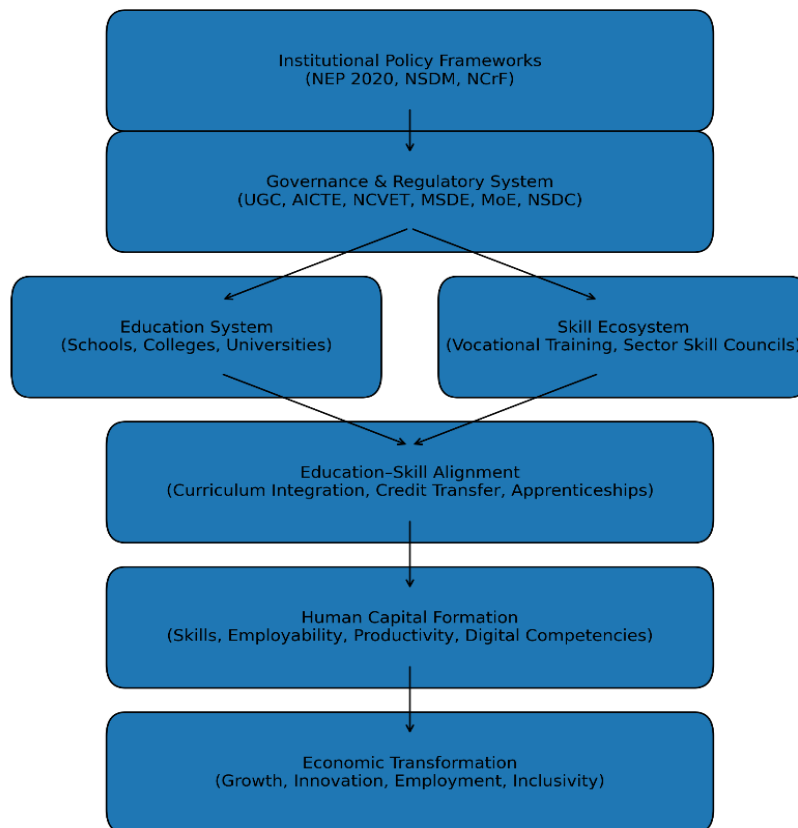


Fig 1: The diagram illustrates how institutional policy frameworks and governance structures drive the integration of education and skill ecosystems through alignment mechanisms such as curriculum integration and credit mobility. This alignment facilitates effective human capital formation, which ultimately contributes to economic transformation in terms of productivity, employability, and innovation.

3. EVOLUTION OF EDUCATION AND SKILL POLICY IN INDIA

India's policy trajectory reflects a gradual shift from education expansion to employability-focused reforms.

Table 1: Evolution of Key Policy Frameworks in India

Period	Policy/Initiative	Focus Area	Key Limitation
1968–1986	National Education Policies	Access & literacy	Limited skill integration
2009	Right to Education Act	Universal schooling	Quality concerns
2015	Skill India Mission	Vocational training	Fragmented implementation
2020	NEP 2020	Holistic & multidisciplinary education	Implementation challenges

4. INSTITUTIONAL LANDSCAPE AND GOVERNANCE CHALLENGES

The education and skill development ecosystem in India can be described as being of a complex and multi-layered institutional structure with a number of ministries, regulatory bodies, and agencies implementing. Formal education is managed by the ministry of Education and vocational training and skill training are managed by the ministry of Skill Development and Entrepreneurship. Standards, accreditation as well as quality assurance are further influenced by regulatory bodies including University Grants Commission (UGC), All India Council of Technical Education (AICTE), and National Council of Vocational Education and Training (NCVET). In as much as this multiplicity indicates a comprehensive governance strategy, in many cases, it creates overlapping mandates, duplication of policies and piecemeal implementation, thus constraining the effectiveness of alignment between the education and skill systems.

The main governance issue is the absence of interconnectedness and integration between these institutions resulting in poor industry connections, certification inconsistency, as well as the absence of achievements between academic and vocational route. Also, institutional silos impede the design of a labour market-oriented curriculum hence the enduring education-employment mismatch. Although the reforms of the recent years, including the National Education Policy (NEP) 2020 or the National Credit Framework (NCrF) have been implemented, the gaps in the implementation, the infrastructural limitations, and insufficient collaboration with the stakeholders still hinder convergence on a systemic level. To tackle these issues of governance, it is necessary to have a co-ordinated, data-driven and integrated institutional mechanism that will be used to lead to good human capital formation.

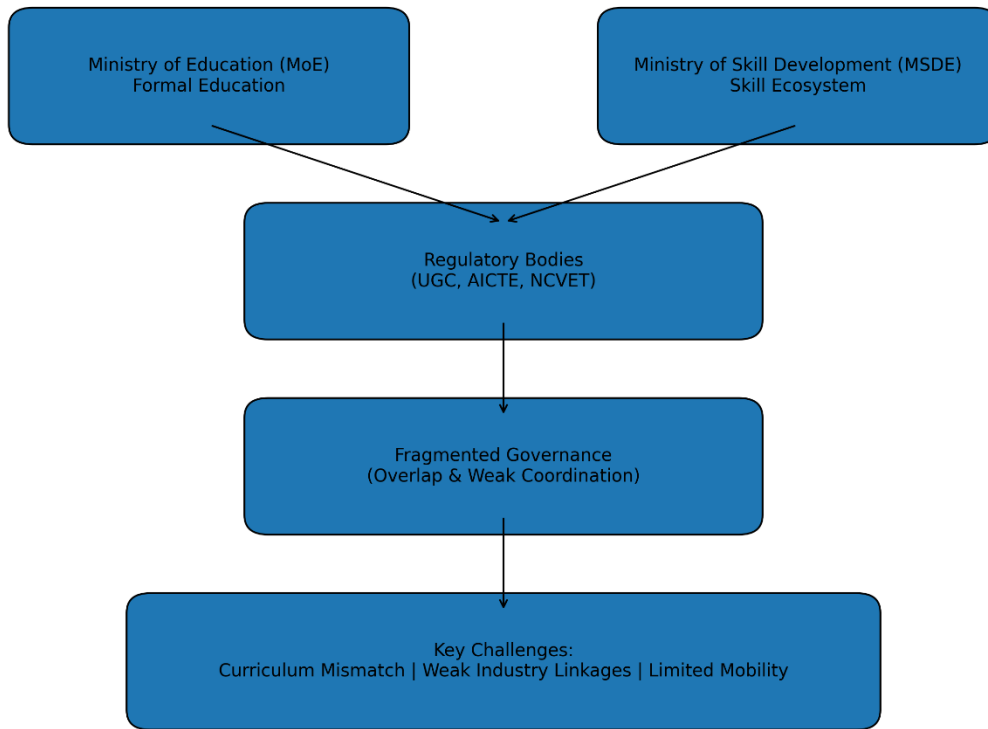


Figure 2 : The figure shows the disorganized institutional framework that regulates the education and skill development in India, with a number of ministries and regulatory bodies operating concurrently. It shows how poor coordination between these institutions results in governance issues including mismatch in curriculum, lack of mobility and insufficient industry alignment.

5. SKILL ECOSYSTEM IN INDIA – ACHIEVEMENTS AND LIMITATIONS

Dimension	Key Achievements	Major Limitations	Critical Analysis
Policy Initiatives	Launch of Skill India Mission, PMKVY, NSDM	Fragmented implementation across states and sectors	Strong policy intent but weak coordination reduces overall impact
Institutional Development	Establishment of NSDC and Sector Skill Councils (SSCs)	Overlapping roles and lack of standardization	Institutional expansion without effective integration limits efficiency
Training Infrastructure	Increase in training centres and skill development institutes	Quality disparities across centres, especially in rural areas	Quantity-driven expansion often compromises training quality
Industry Linkages	Sector Skill Councils promote industry participation	Limited real-time industry engagement and weak apprenticeship systems	Industry involvement remains formal rather than functional

Certification Framework	Development of National Skills Qualification Framework (NSQF)	Low recognition of vocational certification in labour market	Certification lacks parity with formal academic qualifications
Employability Outcomes	Increased awareness and participation in skill programs	Low placement rates and job mismatch	Training outcomes not adequately aligned with market demand
Inclusion and Accessibility	Focus on marginalized groups and youth employability	Gender gaps, regional disparities, and digital divide persist	Inclusion policies exist but face implementation barriers
Emerging Skills Integration	Initial focus on digital skills and entrepreneurship	Insufficient emphasis on AI, green jobs, and future skills	Skill ecosystem lags behind rapidly evolving economic needs

Table 2: The table below gives a comparative evaluation of the major milestones and structural constraints of the skill ecosystem in India with critical gaps in policy execution, institutional cohesiveness and alignment of the labour market.

6. PROPOSED MODEL

Dimension	Current Status	Proposed Reform
Governance	Fragmented	Unified regulatory mechanism
Curriculum	Theory-oriented	Competency-based
Certification	Disjointed	National credit-linked system
Industry Linkage	Weak	Mandatory partnerships

7. POLICY RECOMMENDATIONS

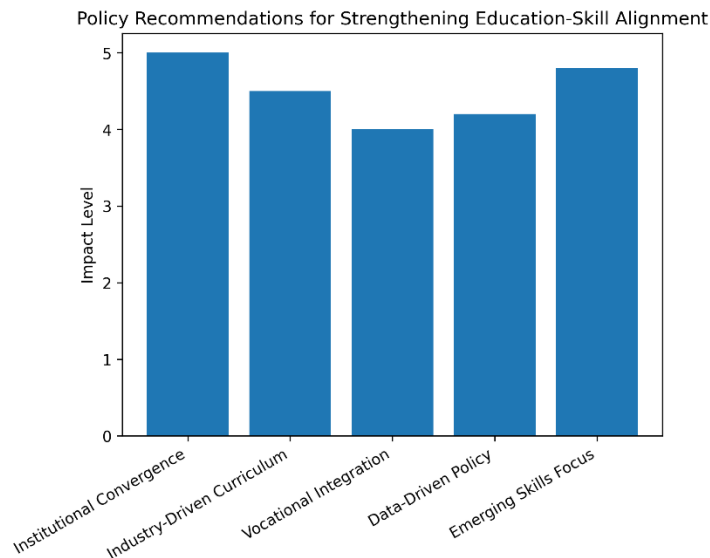


Figure 3: The graph presents key policy recommendations and their relative impact on improving alignment between education and skill ecosystems in India. It highlights institutional convergence and emerging skills focus as the most critical drivers of effective human capital formation.

8. CONCLUSION

India is not a country where education and skill systems should be aligned, but rather, a country that should. Even though much has been achieved in recent reforms, structural fragmentation and issues with its implementation still pose a hindrance to effective human capital formation.

The key to enabling the demographic potential in India to become economically prosperous is a holistic and integrated solution, which will be based on the convergence of institutions, the cooperation of the industries, and the learning that relies on competency. It will greatly be determined how successful the economic transformation in India will be when it is able to produce educated population, but also skilled, flexible, and future oriented workforce.

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