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Education Policies and Their Role in Building a Digitally Literate Workforce

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Abstract

In today's digital world, having a workforce that understands and uses technology is very important for a country's growth. In India, education policies play a big role in helping students and workers learn digital skills. These policies guide how schools and colleges include digital education in their teaching and help provide access to technology for students and teachers.

This paper looks at how Indian education policies and various government initiatives—such as the National Education Policy (NEP) 2020, Digital India campaign, National Digital Literacy Mission, Pradhan Mantri Gramin Digital Saksharta Abhiyanand PM eVIDYAetc.—are helping to build a digitally skilled population. These programs aim to improve digital learning by providing online platforms, training teachers in digital tools, and making digital content available in different. The paper also talks about challenges like the digital divide between urban and rural areas, lack of internet access, teachers training and the need for better teacher support.

Through examples from different Indian states and Central government initiatives in digital literacy, the paper shows that strong policies, when implemented well, can help more people gain digital skills. It has huge impact on Employability and Socio-Economic Progress of the country. It also highlights the importance of working together—government, schools, private companies, and communities—to make sure digital education reaches everyone.

<u>Expected outcome</u>: The research will highlight how Indian education policies and government initiatives have positively contributed to building a digitally skilled population, particularly through efforts like NEP 2020, Digital India, and PM eVIDYA. It will also bring attention to major challenges like the digital divide, especially between urban and rural areas, insufficient internet access, and inadequate teacher support and training.

Keywords: Digital literacy, Education policies, NEP 2020, Government initiatives, Access to technology

1. Introduction

The digital revolution has fundamentally transformed the modern workplace, making digital proficiency essential for employability, productivity, and competitiveness. Digital literacy is no longer confined to



operating computers—it now includes competencies such as critical information evaluation, ethical use of digital tools, and adaptability to rapidly evolving technologies.

Education systems around the world are responding to these new demands by embedding digital literacy into curricula, teaching strategies, and policy frameworks. This paper explores the role of educational policies in promoting digital literacy, particularly in the Indian context, by analyzing key policy initiatives, implementation strategies, and measurable outcomes.

According to the American Library Association (2013), digital literacy is "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills." These competencies are essential for functioning in a society where communication and access to information are increasingly mediated through digital platforms. The European Commission (2006) similarly identifies digital competence as a core lifelong learning skill.

In the workforce context, digital literacy extends to using industry-specific software, managing data, practicing cybersecurity awareness, and adapting to technologies like artificial intelligence (AI) and machine learning (ML). These capabilities are vital for both blue-collar and white-collar roles in a globally competitive economy. Consequently, national education policies are being redesigned to meet the demands of a digital economy. This paper investigates the interplay between educational policy and digital literacy, emphasizing the strategic importance of aligning curricula and pedagogy with technological advancements.

2. Objective of the Study

a) To examine existing education policies related to digital literacy

b) To assess the impact of these policies on the digital skills of students and workforce entrants.

c) To identify gaps and challenges in current education systems regarding digital skill development

3. Research Methodology

This study is exploratory in nature and relies primarily on secondary data sourced from government reports, policy documents, official portals, academic literature, and verified news article.

4. Education Policies Promoting Digital Literacy

India has undertaken several initiatives to promote digital literacy, aiming to empower its citizens with the necessary skills to thrive in a digital economy. Below are key policies and programs that have been instrumental in this endeavor:

4.1 Digital India Initiative

Launched in 2015, Digital India seeks to empower citizens through digital means. Relevant subprograms include:

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- **Pradhan MantriGramin Digital SakshartaAbhiyan (PMGDISHA):** Aims to digitally literate 60 million rural households.
- SWAYAM and NPTEL: Platforms for online education that promote flexible learning.

4.2 Pradhan MantriGramin Digital SakshartaAbhiyan (PMGDISHA)

- **Objective**: Launched in 2017, PMGDISHA aimed to make at least one person per rural household digitally literate.
- Achievements:
 - As of March 31, 2024, the scheme trained **6.39 crore** individuals, surpassing its original target of 6 crores.
 - Training centers were established across various districts, including Bhiwani and Mahendergarh in Haryana
 - Beneficiaries included field-level government functionaries such as 1.74 lakh Anganwadi workers, 54,329 ASHA workers, and 12,154 ration dealers.
 - State-wise, Uttar Pradesh had the highest number of beneficiaries at 1.45 crore, followed by Bihar with 74.12 lakh, Maharashtra with 53.23 lakh, Madhya Pradesh with 50.69 lakh, and Rajasthan with 39.70 lakh.
- Impact:
 - A National Sample Survey Office (NSSO) survey (July 2022 June 2023) indicated that among individuals aged 15-24 years, 78.4% could send messages with attachments via email or SMS.
 - The scheme concluded on March 31, 2024, having successfully enhanced digital literacy across rural India.

4.3 National Digital Literacy Mission (NDLM)

- **Objective**: Enhance digital capabilities of individuals and communities across India.
- Achievements:
 - $\circ~$ Trained over 53.67 lakh individuals between 2014 and 2016, with approximately 42% from rural areas.

4.4 National Education Policy (NEP) 2020

- **Digital Integration**: NEP 2020 emphasizes the integration of technology in education to improve learning outcomes.
- Key Initiatives:
 - **National Digital University (NDU)**: Established in 2023, NDU offers online courses through a hub-and-spoke model, aiming to provide accessible and quality digital education across the country.
 - Emphasizes the use of digital tools and platforms to improve teaching and learning processes at all educational levels

4.5 SWAYAM (Study Webs of Active Learning for Young Aspiring Minds)



- **Objective**: Provide online education and training through MOOCs (Massive Open Online Courses).
- Features:
 - Offers courses in multiple languages and formats to enhance educational access and digital skills across diverse segments of society.

These initiatives complement the formal education system by offering digital access and skill development to a broader demographic.

4.6 DIKSHA (Digital Infrastructure for Knowledge Sharing)

- **Objective**: Provide access to digital learning materials in multiple languages and formats.
- Impact:
 - Aims to democratize access to quality education, supporting both students and teachers.

4.7 SamagraShiksha

- **Objective**: Implement an integrated centrally sponsored scheme for school education from preprimary to class XII.
- Alignment:
 - Aligned with the recommendations of the National Education Policy (NEP) 2020, emphasizing digital learning and holistic education.

4.8 Common Service Centres (CSCs)

- **Purpose**: CSCs serve as access points for various digital services, including education, healthcare, and financial services, particularly in rural and remote areas.
- **Role in Digital Literacy**: By providing digital access and services, CSCs play a crucial role in promoting digital literacy among underserved populations.

4.9 MeraYuva Bharat (MY Bharat)

- Launch: Initiated on October 31, 2023, by the Ministry of Youth Affairs and Sports.
- **Objective**: MY Bharat is a phygital (physical + digital) platform designed to empower youth by providing equitable access to opportunities for development and nation-building.

4.10 Adobe-AICTE Collaboration

- **Partnership**: Adobe and the All-India Council for Technical Education (AICTE) have collaborated to enhance digital creativity skills among educators and students.
- **Goal**: By 2024, the initiative aims to equip over 75,000 educators across 10,000 institutions with essential digital skills.

4.11 1M1B (One Million for One Billion)



- Objective: Equip youth with essential skills such as AI, digital citizenship, and entrepreneurship.
- Impact:
 - Reached over 500,000 students through various programs, including the Digital Nagrik campaign focusing on online safety.

4.12 National Policy on Skill Development and Entrepreneurship2015

This policy outlines the importance of aligning skill development with industry demands. Key programs include:

- **Pradhan MantriKaushalVikasYojana (PMKVY):** Offers short-term training and certification in digital skills.
- Skill India Mission: Enhances employability by integrating digital literacy into vocational training.

5. Challenges in Building a Digitally Literate Workforce

Despite numerous policy initiatives and large-scale programs, India faces significant challenges in fully realizing a digitally literate workforce. These challenges are multifaceted and span infrastructural, social, economic, and pedagogical dimensions:

5.1 Digital Divide

- Urban-Rural Gap: There is a stark contrast in digital access between urban and rural areas. While urban centers enjoy better internet penetration and access to devices, rural regions often lack basic infrastructure such as reliable electricity and broadband connectivity.
- **Gender Divide**: Women, especially in rural and conservative regions, often have less access to digital tools and training opportunities due to socio-cultural barriers.

5.2 Inadequate Infrastructure

- Many government schools and colleges lack the necessary infrastructure such as functional computers, internet connectivity, and smart classrooms, which hampers the effective implementation of digital literacy programs.
- Power outages, especially in rural areas, further disrupt digital learning initiatives.

5.3 Lack of Trained Educators

- A significant number of teachers lack proper training in the use of digital tools and platforms, limiting their ability to impart digital skills effectively.
- Digital literacy programs often focus on student training but overlook the need for continuous professional development of educators.

5.4 Language and Content Barriers



- Most digital content and platforms are available primarily in English or Hindi, excluding many students whose primary language is a regional dialect.
- There's a need for more multilingual and culturally relevant digital learning content to ensure inclusivity.

5.5 Financial Constraints

- Many low-income households cannot afford smartphones, laptops, or high-speed internet connections, which are essential for digital learning.
- While some government schemes provide access to devices, scalability and sustainability remain concerns.

5.6 Low Awareness and Motivation

- In several regions, especially among older adults and marginalized communities, there is limited awareness of the benefits of digital literacy.
- Many individuals view digital skills as non-essential, especially when basic livelihood needs take precedence.

5.7 Policy Implementation Gaps

- Although several digital literacy programs have been launched, gaps often exist between policy intent and ground-level execution.
- Bureaucratic delays, lack of coordination between ministries, and insufficient monitoring reduce the effectiveness of implementation.

5.8 Cybersecurity and Misinformation Risks

- As more people gain access to digital tools, there is a growing need to educate users about safe internet practices, digital citizenship, and identifying misinformation.
- Most current programs focus on basic skills and overlook digital ethics and cybersecurity.

6. Findings

Based on a detailed examination of India's education policies and digital literacy initiatives, the following key findings have emerged:

6.1 Strong Policy Foundation

- India has developed a robust policy framework aimed at promoting digital literacy through initiatives like **Digital India**, **NEP 2020**, **PMGDISHA**, and **Skill India**.
- These programs demonstrate the government's commitment to equipping citizens with digital competencies at various stages of life, from school to the workforce.

6.2 Positive Impact of Government Initiatives



- Programs like **PMGDISHA** and **NDLM** have successfully reached millions of beneficiaries, particularly in rural areas, enhancing access to digital tools and services.
- Initiatives like **SWAYAM**, **DIKSHA**, and **National Digital University** have expanded the reach of quality education and fostered a culture of digital learning.

6.3 Integration of Digital Tools in Education

- **NEP 2020** places a strong emphasis on the integration of technology in teaching-learning processes, curriculum design, and teacher training.
- Platforms like **DIKSHA** are helping teachers and students access multilingual and multimodal digital content, contributing to inclusive education.

6.4 Expanding Role of Public-Private Partnerships

- Collaborations such as Adobe-AICTE and 1M1B are introducing emerging technologies like AI, digital creativity, and entrepreneurship into mainstream education.
- These partnerships are instrumental in bridging the gap between education and industry-specific digital skills.

6.5 Persistent Digital Divide

- Despite progress, a significant **urban-rural** and **gender-based digital divide** persists, limiting equal access to digital education and employment opportunities.
- Disparities in device ownership, internet connectivity, and digital fluency continue to challenge equitable participation.

6.6 Infrastructure and Human Resource Limitations

- Many educational institutions, especially in rural areas, still lack essential digital infrastructure like computers, internet access, and electricity.
- A shortage of **digitally trained educators** hampers the effective delivery of digital literacy programs.

6.7 Implementation Gaps

• While policy frameworks are comprehensive, **execution at the grassroots level remains inconsistent** due to administrative inefficiencies, inadequate monitoring, and lack of coordination between stakeholders.

6.8 Lack of Advanced Digital Skills Training

• Most programs focus on basic digital literacy, with insufficient emphasis on **advanced digital competencies** such as coding, data analytics, AI, cybersecurity, and digital ethics—skills increasingly required in the evolving job market.



6.9 Limited Awareness and Engagement

- A significant segment of the population, especially older adults and marginalized groups, remains unaware or unmotivated to engage with digital literacy programs.
- More awareness campaigns and community-based outreach are needed to foster digital participation.

7. Conclusion

The study reveals that India has made significant strides in promoting digital literacy through a range of progressive education policies and national initiatives. Programs like Digital India, PMGDISHA, SWAYAM, DIKSHA, and the National Education Policy (NEP) 2020 highlight a strong governmental commitment to integrating digital skills into mainstream education and workforce development.

However, despite the achievements, challenges such as the digital divide, inadequate infrastructure, lack of trained educators, and low digital awareness among marginalized communities persist. These challenges indicate that while policy frameworks are well-intentioned and ambitious, there is a critical need for more effective, inclusive, and sustainable implementation strategies.

Building a digitally literate workforce requires not just access to technology, but also the development of critical thinking, digital ethics, cybersecurity awareness, and adaptability to emerging technologies. Therefore, a multi-stakeholder approach involving government bodies, private enterprises, educational institutions, and civil society organizations is essential for bridging the digital divide and ensuring that every citizen can meaningfully participate in the digital economy.

8. Suggestions

8.1 Strengthening Digital Infrastructure

- Prioritize investment in robust digital infrastructure, especially in rural and remote areas, including internet connectivity, access to affordable digital devices, and reliable power supply.
- Expand public Wi-Fi projects and subsidized device distribution schemes for economically disadvantaged groups.

8.2 Capacity Building for Educators

- Launch continuous professional development programs to train teachers in digital pedagogy, use of EdTech tools, cybersecurity awareness, and emerging technologies.
- Integrate digital skills training into pre-service teacher education programs.
- Incentivize teacher certification programs in digital education

8.3 Bridge the Urban-Rural and Gender Digital Divide

• Launch targeted programs aimed at increasing digital access for rural populations and women.



• Provide community-based digital literacy workshops, using Common Service Centres (CSCs) as hubs for outreach.

8.4 Enhancing Focus on Advanced Digital Skills

- Shift from basic digital literacy towards more advanced competencies like coding, AI, data analytics, cloud computing, and cybersecurity to meet the demands of Industry 4.0.
- Integrate these topics into school and higher education curricula through hands-on projects and industry partnerships.

8.5 Promoting Digital Awareness and Motivation

- Conduct mass awareness campaigns, especially in rural and underserved areas, highlighting the importance and benefits of digital literacy for education, employment, and daily life.
- Engage local leaders, youth groups, and NGOs to mobilize communities.

8.6 Strengthening Public-Private Partnerships

- Foster deeper collaboration between government agencies, tech companies, and non-profits to co-create digital literacy programs, mentorship initiatives, and skill development hubs.
- Encourage corporate social responsibility (CSR) initiatives focused on digital empowerment.

8.7 Addressing the Gender Digital Divide

- Introduce special programs aimed at empowering girls and women with digital skills.
- Provide safe and accessible digital learning spaces for women in rural and conservative communities.

8.8 Monitoring, Evaluation, and Feedback Mechanisms

- Establish robust systems to monitor and evaluate the implementation and outcomes of digital literacy initiatives.
- Incorporate feedback loops from beneficiaries to improve program design and delivery.

8.9 Emphasizing Digital Ethics and Cybersecurity

• Integrate modules on online safety, privacy protection, responsible digital behavior, and misinformation management into all digital literacy curricula.

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