



AI IN SCHOOL EDUCATION: TOWARDS A PREPAREDNESS FRAMEWORK

**POLICY
BRIEF
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Abstract

This policy brief examines the integration of Artificial Intelligence (AI) in school education in India, highlighting its potential as well as inherent challenges. Despite the increasing adoption of AI technologies, significant disparities in access, infrastructure, and teacher training hinder equitable educational delivery. The analysis encompasses key policies, including the National Strategy for Artificial Intelligence, 2018, the National Education Policy, 2020, and the integration of AI as a subject into school curricula. The opportunities presented by AI, such as personalized learning and administrative efficiency, are juxtaposed with challenges such as data privacy concerns, algorithmic bias, and the necessity for responsible and ethical AI practices. A framework for AI preparedness is proposed that is designed to prepare schools in India to integrate AI in education. This policy brief ultimately seeks to provide actionable recommendations for policymakers to enhance learning outcomes and foster an inclusive educational environment in India, addressing the complexities of AI integration in the educational landscape.

The backdrop of this policy brief is the IPCIDE Conference held on September 2023 at India Habitat Centre, New Delhi, involving policymakers, members of academia, educationists, and practitioners working with grassroots organizations in India.


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AI in School Education—Towards a Preparedness Framework

1. Introduction

The integration of AI technologies in education has garnered significant attention and led to technology-driven changes in the way students learn and teachers instruct. The emergence of generative AI and the advent of readily available advanced tools such as GPT-4 has been characterized as an “arrival” technology in the educational context, i.e., its integration in schools is happening organically rather than through formal adoption policies.¹

With the Government of India announcing education as one of the core areas of focus in its National Strategy for Artificial Intelligence,² the Indian education system is likely to witness an uptake of AI-based tools. This increased adoption could lead to significant challenges, as such tools influence teaching, learning, and assessment.

The 2022 annual flagship report of UNESCO’s New Delhi office was also centred on AI in Education. Titled “State of the Education Report for India, 2022: Artificial Intelligence in Education; Here, There and Everywhere”³, the report outlined the challenges and opportunities associated with AI in the educational sector and provided recommendations focused on the responsible and human-centred applications of AI in education in India in a way that contributes to improved learning outcomes and progress towards achieving Sustainable Development Goal 4 (SDG 4), which focuses on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all.

This policy brief builds on a different line of inquiry: after assessing the current landscape, challenges, opportunities, and integration of AI in the current educational curricula, it aims to propose a policy framework tailored to India’s

realities that can help schools in India prepare for the integration of AI. It also aims to provide a comprehensive overview of the current landscape, focusing on the intersection of AI and school education by using desk research, secondary data, and stakeholder observations at the IPCIDE conference, “AI in School Education – Impacts and Challenges”, held on 19 September 2023.⁴

The brief begins with an overview of the school education landscape in India, using secondary data to identify persistent gaps that hinder equitable access to quality education. The brief also explores the use of AI in educational curricula and policies and the opportunities and use cases of AI for both students and educators.

The deployment of AI in education is not without challenges. This brief addresses critical limitations, including data privacy concerns, inherent biases in AI systems, and the necessity for adequate infrastructure and teacher training. It further emphasizes the need for responsible AI practices to ensure the responsible deployment of AI in schools.

Finally, the authors emphasize that the principles of ethical AI in school education comprise fairness and non-discrimination, transparency, privacy protection, accountability, and inclusivity⁵ and propose an AI Preparedness Framework designed to prepare schools in India for the integration of AI in education. This framework has four essential layers: National Digital Infrastructure, Digital Infrastructure in Schools, Teacher Preparedness, and Student Preparedness. The brief also aims to provide actionable recommendations that facilitate the successful adoption of AI technologies in India’s educational institutions, ultimately enhancing learning outcomes and fostering an inclusive educational environment.

1 Klopfer, E., Reich, J., Abelson, H., & Breazeal, C. (2024, March 27). Generative AI and K-12 education: An MIT perspective. Massachusetts Institute of Technology. <https://doi.org/10.21428/e4baedd9.81164b06>

2 NITI Aayog. (2018). National strategy for artificial intelligence. <https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf>

3 UNESCO. (2022). State of the education report for India, 2022: Artificial intelligence in education; Here, there and everywhere. <https://unesdoc.unesco.org/ark:/48223/pf0000382661.locale=en>

4 The agenda of the conference is attached as Annexure 1.

5 Damodaran, A. (2024, June 22). AI in education-Impacts and challenges. ICSSR-Sponsored National Seminar on the Ethical Use of AI for Indian Society and Businesses, T. A. Pai Management Institute, Manipal.

2. An Overview of the Education Landscape in India

The education landscape in India has undergone significant transformations in recent years, particularly in terms of the integration of technology in school education. Despite the increasing adoption of digital tools and resources, disparities in access, infrastructure, and teacher training continue to challenge the equitable delivery of quality education. This chapter provides an overview of the current state of technology integration within Indian schools, focusing on the persisting gaps.

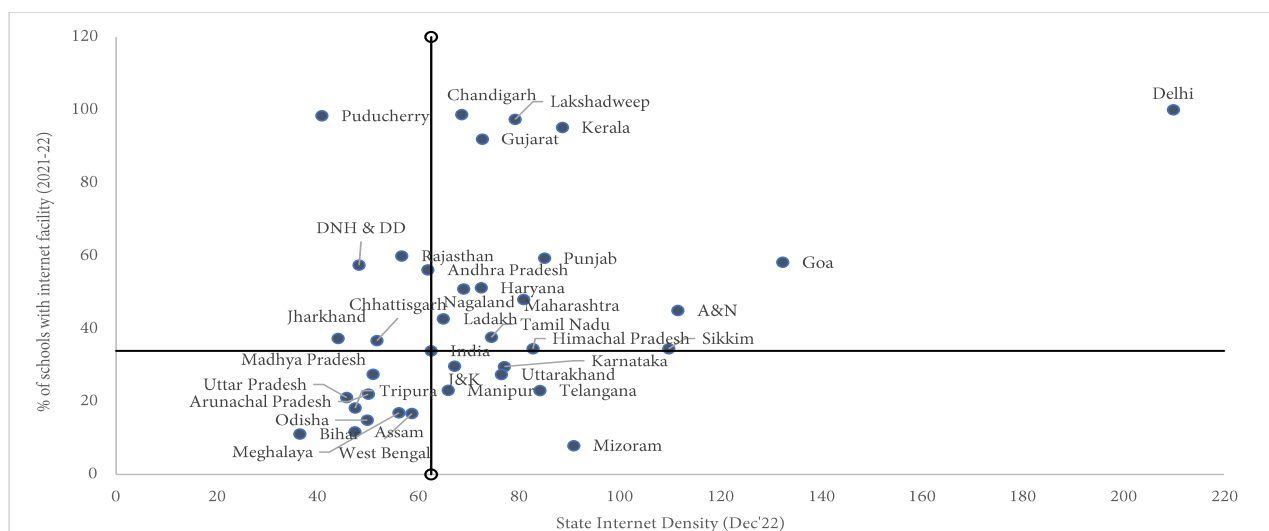
The chapter also focuses on the incorporation of AI within educational policies and curricula. It highlights provisions for integrating AI in school education in key policy documents, such as the National Education Policy (NEP) 2020 and the National AI Strategy, 2018, and aims to provide a nuanced understanding of the opportunities and challenges that define the integration of technology and AI in India's educational landscape.

2.1 Integration of Technology in School Education in India: An Overview

As higher education institutions have begun to establish comprehensive AI policies to navigate the complexities and ethical implications of this rapidly evolving technology, schools find themselves grappling with challenges posed by AI integration. Integration of AI in school education in India faces several challenges, primarily revolving around infrastructure, socio-economic disparities, gender inequalities, and gaps in teacher training.

Digital divide in education remains a significant challenge in India, as approximately 66% of schools lack access to the internet.⁶ This hampers the ability of educational institutions to integrate technology into their curricula, limiting both teaching and learning opportunities. However, recent data from the UDISE+ Report (2021–22) indicates a positive trend, with the percentage of schools equipped with internet facilities increasing from 18.3% in the academic year 2018–19 to 33.9% in 2021–22.⁷ While this growth suggests a gradual improvement in technological access within the educational sector, substantial gaps persist (see Figure 1). Addressing these disparities is essential for fostering an equitable educational environment that can leverage technology to enhance student outcomes.

Figure 1: State-Wise Representation of Schools with Internet Access



Source: UDISE+ 2021-22 and TRAI Performance Indicator Report

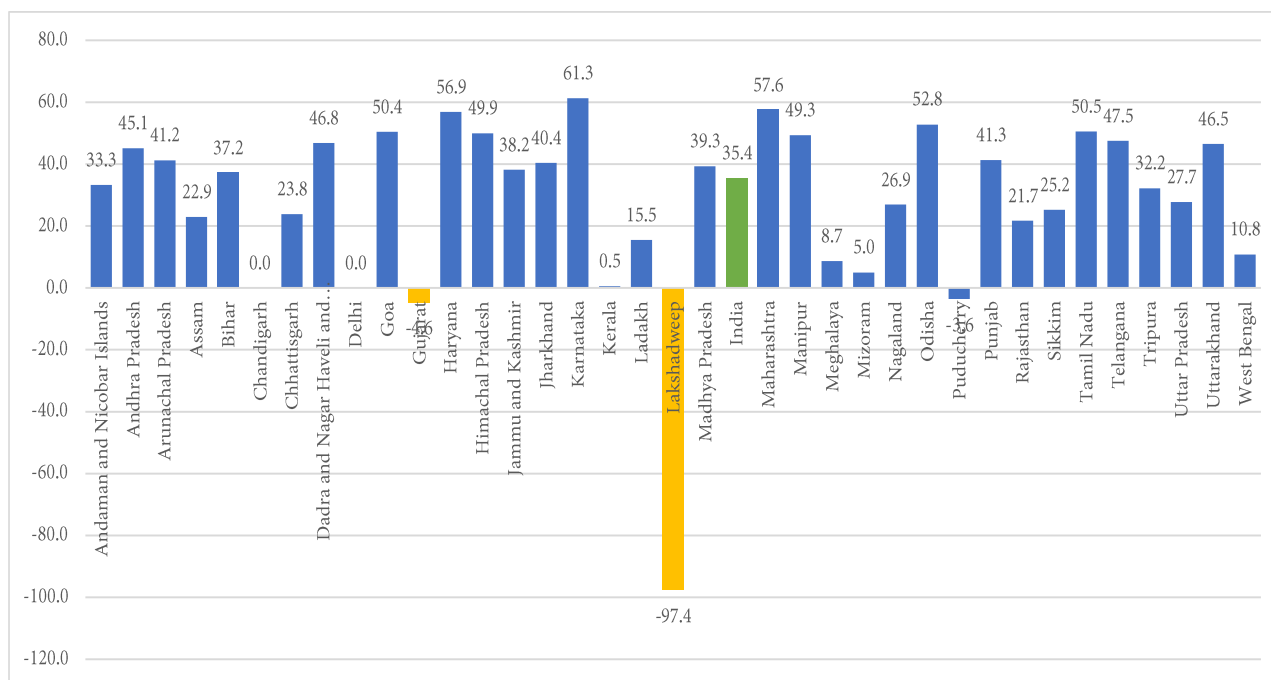
6 Department of School Education and Literacy, Ministry of Education, Government of India. (2022). Report on Unified District Information System for Education Plus (UDISE+): 2021-22 flash statistics. https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2021_22_Booklet.pdf

7 Department of School Education and Literacy, Ministry of Education, Government of India. (2022). Report on Unified District Information System for Education Plus (UDISE+): 2021-22 flash statistics. https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2021_22_Booklet.pdf

The disparity in internet coverage between different types of school management in India is significant. On average, private unaided schools exhibit an internet penetration rate that is 35.4% higher than that of government schools.⁸ This gap is not merely a national phenomenon; for most states, the disparity exceeds the national

average, highlighting a pronounced divide in access to digital resources (see Figure 2). This divide underscores the need for targeted policies to enhance internet accessibility in government schools, thereby fostering equitable educational opportunities across the country.

Figure 2: Percentage Point Disparity in Share of Schools with Internet Facilities (Private Unaided and Government Schools)



Source: UDISE (2021-22)

UDISE data also indicates a significant disparity in the availability of fully functional personal computers (PCs) with integrated teaching and learning devices between private unaided schools and government schools (see Figure 3). Private unaided institutions outperform their government counterparts by an overall margin of 11.4%.⁹ In the academic year 2021–22, 27 states and Union Territories reported that less than 10% of their government schools are

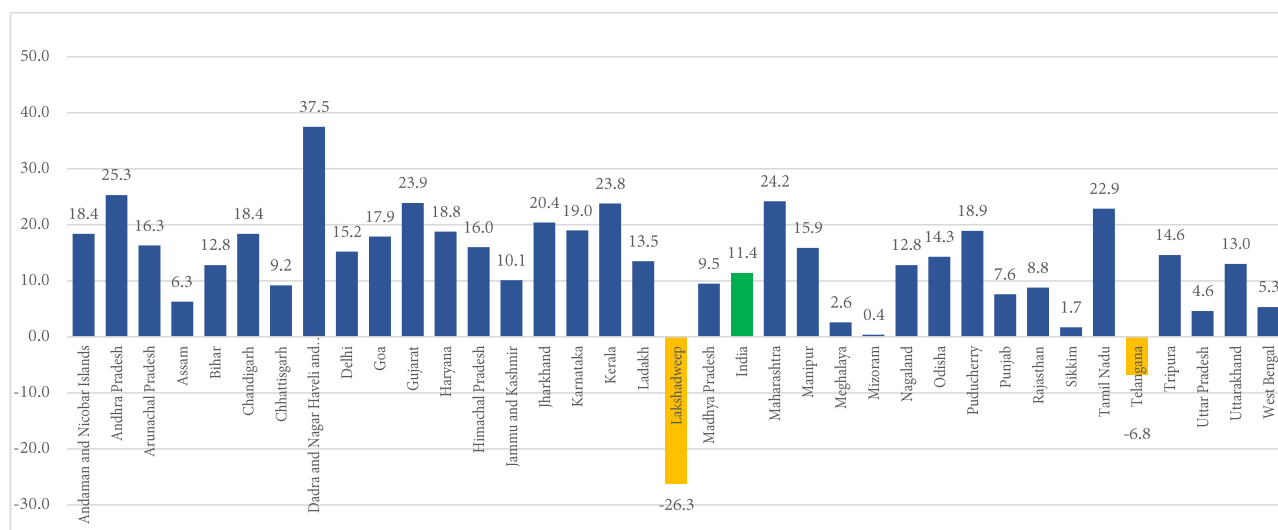
equipped with fully functional PCs.¹⁰ This lack of technological infrastructure in a substantial number of government schools raises concerns about the equitable distribution of educational resources and the capacity of these institutions to deliver quality education in an increasingly digital world. Addressing these disparities is essential for fostering an inclusive educational environment that can meet the demands of contemporary learning.

8 Department of School Education and Literacy, Ministry of Education, Government of India. (2022). Report on Unified District Information System for Education Plus (UDISE+): 2021-22 flash statistics. https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2021_22_Booklet.pdf

9 Department of School Education and Literacy, Ministry of Education, Government of India. (2022). Report on Unified District Information System for Education Plus (UDISE+): 2021-22 flash statistics. https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2021_22_Booklet.pdf

10 Department of School Education and Literacy, Ministry of Education, Government of India. (2022). Report on Unified District Information System for Education Plus (UDISE+): 2021-22 flash statistics. https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2021_22_Booklet.pdf

Figure 3: Percentage Point Disparity in Share of Schools Having PCs with Functional Integrated Teaching Learning Devices (Private Unaided and Government schools)

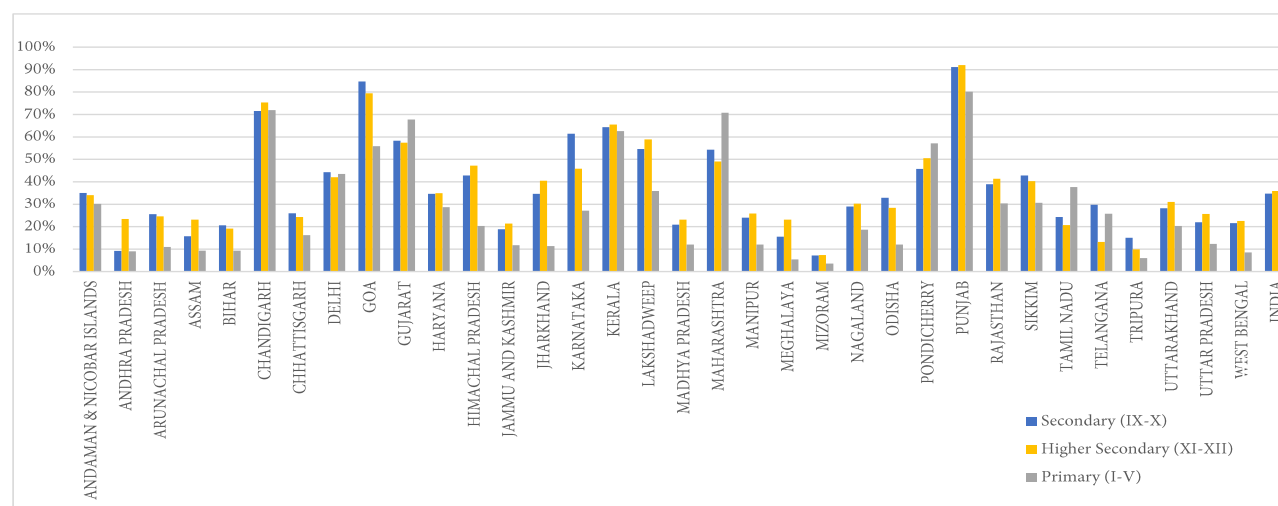


Source: UDISE (2021-22)

The landscape of teacher training in India reveals significant gaps, particularly in the realm of Information and Communication Technology (ICT) (see Figure 4). At the secondary and higher secondary levels, less than 50% of teachers are adequately trained in computer use, highlighting a critical deficiency in the integration of technology in education.¹¹ This issue is even more pronounced at the primary level, where less than 10% of teachers possess the necessary training in

computer skills.¹² Overall, the proportion of ICT-trained teachers, encompassing both male and female educators across all categories of classes, remains alarmingly low, at less than 40%.¹³ This lack of training not only undermines the effectiveness of teaching but also limits students' exposure to essential digital competencies in an increasingly technology-driven world. Addressing these training gaps is imperative for enhancing the quality of education.

Figure 4: Share of Teachers Trained in the Use of Computers for Teaching (Primary, Secondary, and Higher Secondary)



Source: UDISE (2021-22)

11 Department of School Education and Literacy, Ministry of Education, Government of India. (2022). Report on Unified District Information System for Education Plus (UDISE+): 2021-22 flash statistics. https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2021_22_Booklet.pdf

12 Department of School Education and Literacy, Ministry of Education, Government of India. (2022). Report on Unified District Information System for Education Plus (UDISE+): 2021-22 flash statistics. https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2021_22_Booklet.pdf

13 Department of School Education and Literacy, Ministry of Education, Government of India. (2022). Report on Unified District Information System for Education Plus (UDISE+): 2021-22 flash statistics. https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2021_22_Booklet.pdf

The ability of students to utilize technology effectively remains a significant challenge, particularly when rural-urban and gender gaps persist. Research indicates that male students are more likely than their female counterparts to possess the necessary skills for computer and internet usage (see Figures 5 and 6). This discrepancy not only highlights the ongoing gender gap but also raises concerns regarding equitable access to educational resources.

Moreover, the adoption of digital tools for self-directed learning is disproportionately in favour of children enrolled in private schools compared to those in government institutions, with research also reflecting persisting rural-urban gaps (see Figures 7 and 8). This skewed access exacerbates existing inequalities, as students in government schools may lack the requisite resources and support to engage with digital learning platforms effectively.

Figure 5: Percentage of Persons in the Age Group of 5 Years and Above Able to Operate a Computer (2017–18)

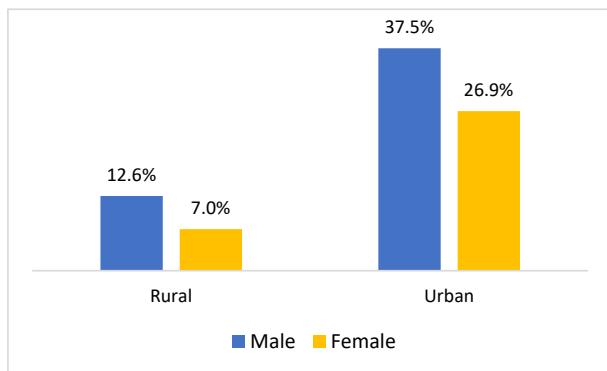
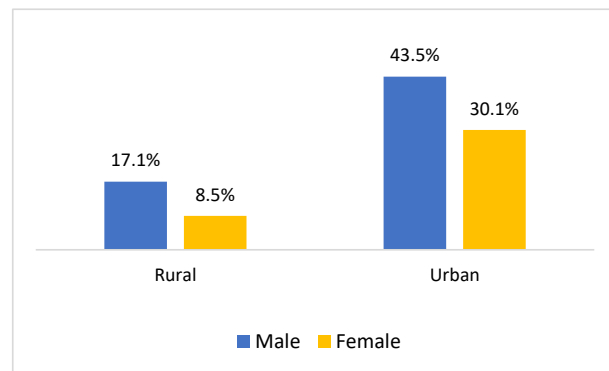


Figure 6: Percentage of Persons in the Age Group of 5 Years and Above Able to Use the Internet (2017–18)



Source: NSS Key Indicators of Household Social Consumption on Education in India, 2017-18

Figure 7: Share of Children Pursuing Self-Learning on Any Digital Tools (Nov 2022– Jan 2023)

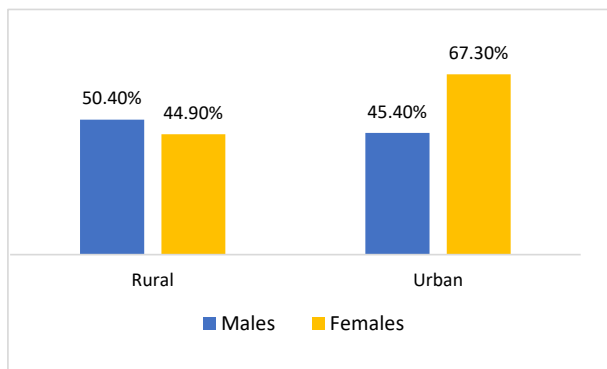
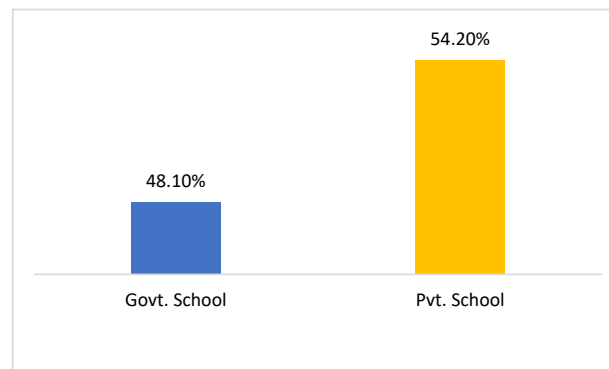


Figure 8: Share of Children Pursuing Self-Learning on Any Digital Tools, by Type of School Enrolment (Nov 2022–Jan 2023)



Source: Bharat Survey for EdTech, 2023 (Central Square Foundation)

2.2 AI in School Education: Curriculum and Policies

The integration of AI in the Indian education system has emerged as a pivotal issue in national policy frameworks, particularly in the National Strategy for Artificial Intelligence, 2018 and the National Education Policy, 2020. These policy documents explore a strategic

realignment of educational practices to harness AI's transformative potential, emphasize the need for skill-based education in AI, and advocate for curriculum reforms and the development of personalized learning approaches. This section explores the implications of these policies, the introduction of AI as a subject within school curricula, and the associated challenges and opportunities for educators and students alike.

2.2.1 National Strategy for Artificial Intelligence, 2018¹⁴

The Government of India announced education as one of the core areas of focus in its National Strategy for Artificial Intelligence. This strategy advocates for a comprehensive approach for integrating AI in education, emphasizing the need for curriculum reform, adoption of adaptive learning technologies, and use of predictive analytics to enhance student outcomes. It argues that the education sector requires a strategic realignment to effectively and sustainably harness the potential of AI. It suggests a transition towards skill-based education in primary and secondary schools, particularly in subjects pertinent to AI and Science, Technology, Engineering, and Mathematics (STEM), promotes early adoption of AI across various education levels and recommends necessary revisions to school curricula to better integrate technological advancements. It also recognizes that the implementation of AI should be preceded by efforts to digitize records related to teacher performance, student performance, and curriculum and suggests the adaptation of successful AI tools from other regions to address specific challenges in the Indian context.

The strategy also suggests use cases for AI in schools. For instance, it contends that adaptive learning tools can provide customized educational content tailored to individual students' learning levels and assist teachers in managing multi-level and multi-grade classrooms. It also emphasizes the potential benefits of intelligent tutoring systems to deliver learning materials adapted to a child's proficiency level and learning style and argues that such systems can enhance interactivity through tailored pop-up questions, facilitate assessment of students' attention and comprehension, and allow for tailored remedial instruction.

Predictive tools are also highlighted in this policy as instrumental in pre-emptive actions for students at risk of dropping out. By analyzing test results and attendance records through AI,

educational authorities can identify students who are likely to disengage from school and enable the design of targeted interventions to support underperforming students.

2.2.2 NEP, 2020¹⁵

The NEP makes several suggestions for incorporating AI into school education, which emphasize personalized learning, progress tracking, and support for diverse student needs. It recognizes AI as a disruptive technology and argues that there is need for an urgent adaptation of the education system to leverage AI's potential, ensuring that students are equipped for a rapidly evolving landscape. The NEP proposes the development of AI-based software designed to facilitate holistic progress tracking for students throughout their academic journey. This software would utilize learning data and interactive questionnaires to provide insights into students' individual strengths, interests, and areas requiring attention. Such personalized feedback is intended to guide students in making informed career choices and enhancing their educational experience.

The NEP 2020 also advocates for the enhancement of learning and assessment through the integration of AI in educational tools. This encompasses adaptive computer testing and other AI-driven resources that personalize the learning process, catering to the unique needs of each student. The NEP also emphasizes the importance of supporting gifted students by developing AI-driven online applications that offer quizzes, competitions, and assessments, seeking to enrich their learning initiatives under appropriate supervision.

While acknowledging the use cases of AI in schools, the policy also recognizes that the implementation of AI in education is not without its challenges. Accordingly, it emphasizes the need to address ethical and privacy concerns associated with AI technologies and calls for heightened awareness regarding data protection

14 NITI Aayog. (2018). National strategy for artificial intelligence. <https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf>

15 Ministry of Human Resource Development, Government of India. (2020). National Education Policy 2020. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

and ethical implications, positioning education as a critical player in fostering this understanding among stakeholders.

2.2.3 Integrating AI into School Curricula

The Central Board of Secondary Education (CBSE) introduced 'Artificial Intelligence' as an optional subject in its affiliated schools in the academic year 2019–2020. The subject is offered as a 12-hour module in class VIII and as a skill subject in classes IX to XII.¹⁶ The Board also launched an AI Curriculum Handbook¹⁷ and an AI Integration Manual¹⁸ to provide pedagogical support for experiential learning.

The curriculum aims to prepare learners to understand AI and its applications through interactive and hands-on activities. It introduces learners to the three domains of AI, i.e., data, computer vision, and Natural Language Processing, in an age-appropriate manner and helps students understand the process of developing AI solutions.¹⁹ It also emphasizes understanding the impact of AI on the Sustainable Development Goals to foster responsible citizenship and is part of a broader effort to integrate skill education with traditional learning, enhancing employability and vocational competencies.²⁰ In the academic year 2022–23, over 3,86,000 students opted for AI at the secondary level (i.e., classes IX and X combined) while approximately 12,000 students opted for AI at the senior secondary level (i.e., classes XI and XII combined).²¹

In addition to CBSE, several state governments have introduced AI as a subject in state boards. In the academic year 2022–23, Madhya Pradesh became the first to introduce a course in AI for students of classes VIII and above.²² Introduced in partnership with Microsoft, the initiative was piloted in 53 schools with plans for expansion.²³ State Boards in Uttar Pradesh and Kerala are planning to introduce AI as a subject in the 2024–25 academic year. The programme in Uttar Pradesh will allow students of classes VII–VIII in approximately 45,000 state-run schools to learn the basics of AI.²⁴ Kerala will integrate AI in class VII ICT textbooks, which will reach over 4,00,000 students²⁵. Kerala also plans to expand the AI curriculum for classes VIII–X in the academic year 2025–26 to enable in-depth exploration of AI.²⁶

While the 2018 AI strategy laid a foundational framework for integrating AI into the educational landscape, it is imperative to acknowledge that it does not fully account for the contemporary realities shaped by the recent surge in generative AI technologies. The original focus on instruction and skill development, while still relevant, must now be expanded to address the emergent challenges that have become increasingly critical. Opportunities presented by AI tools and use cases necessitate a concentrated effort on safety and preparedness. As educational institutions begin to adopt these advanced technologies, it is vital to ensure that they are implemented in a manner that safeguards student welfare and enhances learning outcomes.

16 Rajya Sabha Unstarred Question No. 1452. (2023). Artificial intelligence courses in every school. <https://sansad.in/getFile/annex/260/AU1452.pdf?source=pqars>

17 Central Board of Secondary Education. (n.d.). Artificial intelligence curriculum: Class 9 facilitator handbook. https://cbseacademic.nic.in/web_material/Manuals/AICurriculumHandbook.pdf

18 Central Board of Secondary Education. (n.d.). Artificial intelligence integration across subjects for CBSE curriculum. https://cbseacademic.nic.in/web_material/Manuals/AIIntegrationManual.pdf

19 Central Board of Secondary Education. (n.d.). Department of skill education curriculum for session 2023-2024: Artificial intelligence. https://cbseacademic.nic.in/web_material/Curriculum24/sec/417-AI-IX-X.pdf

20 Central Board of Secondary Education. (n.d.). Department of skill education curriculum for session 2023-2024: Artificial intelligence. https://cbseacademic.nic.in/web_material/Curriculum24/sec/417-AI-IX-X.pdf

21 Rajya Sabha Unstarred Question No. 1452. (2023). Artificial intelligence courses in every school. <https://sansad.in/getFile/annex/260/AU1452.pdf?source=pqars>

22 Teri, D. (2022, April 1). Madhya Pradesh to introduce AI as subject from Class 8, ropes in Microsoft. Indian Express. <https://indianexpress.com/article/education/mp-to-introduce-ai-as-a-subject-from-class-8-ropes-in-microsoft-7845098/>

23 Teri, D. (2022, April 1). Madhya Pradesh to introduce AI as subject from Class 8, ropes in Microsoft. Indian Express. <https://indianexpress.com/article/education/mp-to-introduce-ai-as-a-subject-from-class-8-ropes-in-microsoft-7845098/>

24 IANS. (2023, September 11). UP students to learn basics of coding, AI from next year. ET Education.com. <https://education.economicstimes.indiatimes.com/news/government-policies/up-students-to-learn-basics-of-coding-ai-from-next-year/103567650>

25 The Hindu Bureau. (2024, May 31). Kerala includes AI in school textbook. The Hindu. <https://www.thehindu.com/news/national/kerala/state-includes-ai-in-school-textbook/article68233075.ece>

26 The Hindu Bureau. (2024, May 31). Kerala includes AI in school textbook. The Hindu. <https://www.thehindu.com/news/national/kerala/state-includes-ai-in-school-textbook/article68233075.ece>

There is also a need to confront the societal risks associated with AI integration. This includes concentrated efforts to eliminate biases, bridge socio-economic and gender divides, and uphold ethical AI in schools. Ethical AI principles in school education comprise the following:²⁷

- **Fairness and Non-Discrimination:** AI systems should be designed to avoid bias based on race, gender, socio-economic status, or other factors by using diversity-based training datasets that are frequently audited.
- **Transparency:** AI systems implemented in schools should be transparent and explainable, particularly concerning how they work and arrive at outputs.
- **Privacy Protection:** There is a need to ensure safe and secure handling, storage, and sharing of personal data, especially in light of the Digital Personal Data Protection Act, 2023. The Act mandates obtaining verifiable parental consent before collecting children's data while ensuring that such data is used solely for its intended purpose and not subjected to tracking or targeted advertising. Additionally, it emphasizes the importance of safeguarding children's well-being and limiting data retention to necessary durations.²⁸
- **Accountability:** Roles and responsibilities of educators, school administrators, and AI system providers on who is accountable for deployment and oversight of the system should be clearly defined. Regular audits and impact assessments should be conducted to ensure ethical use.
- **Inclusivity:** AI tools should be designed for all students to ensure accessibility to all, especially marginalized groups. Such groups should also be involved in the development process of such AI systems to ensure equitable learning opportunities for all students.

Prioritizing opportunities for safe and secure AI applications in schools and addressing societal challenges will be crucial to navigating the complexities of AI integration in schools while fostering an equitable and inclusive educational environment for all.

3 AI in School Education: Opportunities and Challenges

The integration of AI into school education represents a significant evolution in pedagogical approaches. This chapter aims to examine the transformative potential of AI in educational settings, exploring use cases that illustrate how AI can personalize learning, streamline administrative tasks, and support diverse learning needs. However, the implementation of AI in education is not without its challenges. Issues such as data privacy, bias in AI algorithms, and the need for adequate infrastructure and teacher training pose significant barriers to effective integration. Reliance on AI tools also raises questions about the preservation of human interaction in the learning process and the potential for students to develop essential cognitive skills. In light of these complexities, the chapter will also emphasize the necessity for responsible AI practices within educational contexts.

Establishing guidelines for ethical AI use is paramount to ensure that these technologies contribute positively to the educational landscape, safeguarding the interests of students and educators alike. Through a comprehensive examination of opportunities and challenges presented by AI in school education, this chapter seeks to provide a nuanced understanding of its role in shaping the future of learning. The observations and assertions in this chapter are based on the discussions at the IPCIDE conference on “Generative AI in School Education – Impacts and Challenges” held on 19 September 2023.²⁹

27 Damodaran, A. (2024, June 22). AI in education-Impacts and challenges. ICSSR-Sponsored National Seminar on the Ethical Use of AI for Indian Society and Businesses, T. A. Pai Management Institute, Manipal.

28 The Digital Personal Data Protection Act, 2023. (2023, August 11). <https://www.meity.gov.in/writereaddata/files/Digital%20Personal%20Data%20Protection%20Act%202023.pdf>

29 The conference agenda is attached as Annexure 1. IPCIDE. (2023, September 19). IPCIDE conference on generative AI in school education – Impacts and challenges. India. https://www.youtube.com/watch?v=0olkBOelQRI&ab_channel=ICRIER

3.1 Opportunities and Use Cases

3.1.1 Students

Integration of AI in school education can offer significant opportunities for personalized learning pathways, enhanced inclusivity, and improved educational outcomes. AI technologies enable the creation of tailored educational content that caters to the unique needs of each student.³⁰ This adaptive learning approach adjusts the difficulty and type of content based on individual performance, thereby fostering a more engaging and effective learning experience.

AI can also facilitate the acceleration of multilingual learning in secondary and higher secondary schools, particularly through Natural Language Processing.³¹ This not only supports linguistic diversity but also promotes inclusivity by addressing the needs of students from various language backgrounds. AI also holds potential for students with disabilities; by utilizing adaptive learning applications, AI can provide specialized support that enhances accessibility and learning outcomes for differently abled students.³²

AI tutors have garnered mixed reactions, with some students appreciating the flexibility and constant accessibility, which allows for the opportunity to revisit concepts at their own pace, while others have expressed concerns about their impersonal nature.³³ This serves to underscore the importance of human interaction in the learning process.

3.1.2 Educators

The integration of AI tools in education offers opportunities for teachers to automate administrative tasks, allowing more time for direct student engagement.³⁴ Educators are generally optimistic about generative AI's ability to simplify lesson planning and enhance instructional strategies.³⁵ Key areas of focus include rethinking assessments to reduce rote learning and emphasize critical thinking. AI can assist in developing assessments that prioritize synthesis and analysis, leading to standardized practices that enhance fairness in grading. However, some teachers express scepticism about the reliability of AI-generated assessments and the potential loss of personal connections in feedback, which are crucial for student engagement.³⁶

Teachers also emphasize the importance of adapting their teaching methods to accommodate the capabilities and challenges presented by these new technologies.³⁷ This highlights the need for a balanced approach that incorporates technology while maintaining human interaction. Teachers have also shown interest in using AI for marking and reducing workload, indicating a demand for efficiency in educational practices.³⁸ Nonetheless, there is a reluctance to adopt untested tools, thus emphasizing the importance of building trust in AI applications.³⁹

30 Holmes, W., Persson, J., Chounta, I.-A., Wasson, B., & Dimitrova, V. (2022). Artificial intelligence and education - A critical view through the lens of human rights, democracy and the rule of law. Council of Europe.

31 Damodaran, A. (2023, September 20). AI can transform school education, minimise drudgery to improve quality. Business Standard. https://www.business-standard.com/opinion/columns/ai-can-transform-school-education-minimise-drudgery-to-improve-quality-123092000543_1.html

32 UNESCO. (2023). Guidance for generative AI in education and research. <https://unesdoc.unesco.org/ark:/48223/pf0000386693>

33 Department for Education, Government of the United Kingdom. (2024). Use cases for generative AI in education: User research report. https://assets.publishing.service.gov.uk/media/66cdb078f04c14b05511b322/Use_cases_for_generative_AI_in_education_user_research_report.pdf

34 Damodaran, A. (2023, October 19). Mitigating the learning crisis: How AI can help rebalance and transform school education. Economic Times. <https://economictimes.indiatimes.com/prime/technology-and-startups/mitigating-the-learning-crisis-how-ai-can-help-rebalance-and-transform-school-education/primearticleshow/104532811.cms?from=mdr>

35 aiEDU. (2023). Pulse survey report. <https://www.aiedu.org/pulse>

36 Department for Education, Government of the United Kingdom. (2024). Use cases for generative AI in education: User research report. https://assets.publishing.service.gov.uk/media/66cdb078f04c14b05511b322/Use_cases_for_generative_AI_in_education_user_research_report.pdf

37 MIT Teaching Systems Lab. (2024). Teachers on AI. https://tsl.mit.edu/wp-content/uploads/2024/08/MITTSL_GenAIposter_8.2024-1.pdf

38 Department for Education, Government of the United Kingdom. (2024). Use cases for generative AI in education: User research report. https://assets.publishing.service.gov.uk/media/66cdb078f04c14b05511b322/Use_cases_for_generative_AI_in_education_user_research_report.pdf

39 Department for Education, Government of the United Kingdom. (2024). Use cases for generative AI in education: User research report. https://assets.publishing.service.gov.uk/media/66cdb078f04c14b05511b322/Use_cases_for_generative_AI_in_education_user_research_report.pdf

3.2 Challenges and Limitations

While AI holds the potential to enhance educational outcomes, its integration into the school system is fraught with pragmatic concerns. Apprehensions regarding inherent biases within AI can lead to lack of trust in the system. There is growing apprehension that reliance on AI may hinder the development of critical thinking skills among learners as well as exacerbate issues related to academic integrity, particularly with the use of widely accessible tools such as ChatGPT.⁴⁰

Data privacy is another significant concern that complicates AI deployment in educational settings, as the security of sensitive information of both students and teachers must be safeguarded. There are also rising concerns among educators regarding questions about intellectual property and whether their work will be associated with the data being used to train AI models.

The ambiguity around the inner workings of AI technologies contributes to a general fear of the unknown, which can hinder acceptance among educators and administrators. This fear is compounded by the insufficient training provided to teachers, which is often cited as a critical weakness in India's educational framework.⁴¹ Without adequate professional development, educators may struggle to implement AI tools effectively.

Moreover, the deployment of AI systems in regional languages remains a significant barrier, and the lack of localized datasets tailored to the Indian educational context poses a challenge for the effective training of AI systems targeted to Indian needs. Low technology penetration in certain regions exacerbates these challenges, making it difficult to ensure equitable access to AI resources for all students.

Socio-economic aspects also play a major role in the adoption of AI in schools. Access to

digital tools is influenced by gender biases and socio-economic disadvantages, which often hinder engagement from girls and economically disadvantaged students. Gender biases and socio-economic disadvantages further complicate AI integration and affect engagement.

Addressing access disparities and gender biases, ensuring data privacy, providing robust teacher training, and developing localized datasets will be essential in using AI to enhance learning outcomes.

3.3 The Need for Responsible AI in Schools

As schools increasingly adopt AI tools to enhance learning and teaching processes, it is imperative to advocate for the responsible and ethical use of these technologies. The deployment of AI in schools necessitates a framework that prioritizes human oversight, data privacy, and mitigation of biases, ensuring that AI systems contribute positively to the educational landscape.

School education plays a critical role in the development of human intelligence, and the introduction of AI must be approached with caution and responsibility. The need for guardrails and human involvement in AI processes cannot be overstated. AI systems should not operate in isolation; rather, their deployment must be accompanied by human supervision to foster a human-centric approach to responsible AI. This requires the owners and implementers of AI technologies to ensure that these systems undergo rigorous testing before deployment. Such testing is essential to identify and rectify potential issues, including biases and inaccuracies, and for the establishment of checks and balances.

Data privacy and intellectual property are significant considerations in the deployment of AI tools in educational settings. Concerns regarding the privacy of student data, the potential for surveillance, and the safeguarding of copyrighted

40 IPCIDE. (2023, September 19). Session 2: Responsible use of AI in school education. IPCIDE conference on generative AI in school education – Impacts and challenges. India. https://www.youtube.com/watch?v=0olkBOelQRI&ab_channel=ICRIER

41 IPCIDE. (2023, September 19). Session 1: AI as a transformational tool in school education. IPCIDE conference on generative AI in school education – Impacts and challenges. India. https://www.youtube.com/watch?v=0olkBOelQRI&ab_channel=ICRIER

material must be addressed. AI models must be trained without compromising the privacy of individuals or incorporating proprietary content without consent. Additionally, AI systems often harbour hidden biases that can adversely affect learning outcomes. Therefore, it is crucial to ensure that these technologies are designed to help learners overcome biases rather than perpetuate them. This can be achieved by using diverse datasets that reflect a wide range of perspectives and experiences.

AI hallucinations, wherein an AI model generates misleading or incorrect information, are also a significant risk in educational contexts. To combat this issue, it is essential to implement mechanisms that make AI responses verifiable. The continuous evaluation of generative AI tools, along with systematic feedback loops, can contribute to the refinement and improvement of these systems, ultimately enhancing their reliability in educational applications.

Training educators in the use of AI tools is another critical aspect of responsible AI integration. Teachers must be equipped with the knowledge and skills necessary to effectively incorporate AI into their teaching practices. This training should also encompass the promotion of responsible AI usage among students. Schools play a vital role in instilling academic honesty and ethical considerations regarding AI tools within their curricula. By fostering an environment where students understand the implications and responsibilities associated with AI usage, educational institutions can create learners who engage with technology thoughtfully and ethically.

AI tools should be tailored to meet the specific educational needs of students. Rather than merely generating answers, AI systems deployed in schools should guide students in their quest for knowledge, encouraging critical thinking and independent inquiry. This approach aligns with the overarching goal of education: to empower

learners to seek answers and develop their understanding.

The responsible implementation of AI in school education is not merely a desirable goal but a necessity. The establishment of regulatory frameworks such as the EU Artificial Intelligence Act, which classifies AI use in education as “high risk”,⁴² underscores the importance of oversight and accountability in this domain. In navigating the complexities of integrating AI in educational settings, it is essential to prioritize human involvement, data privacy, and equity to enhance learning while safeguarding the interests and well-being of students and educators alike.

4 Conclusion and Recommendations

The integration of AI tools in educational settings necessitates a cautious and well-informed approach. While the potential of generative AI is significant, many products currently lack proven efficacy, prompting educators to critically evaluate their impact on teaching and learning. The iterative nature of adapting to these technologies requires ongoing experimentation and reflection as the landscape of AI continues to evolve.

Educators play a crucial role in guiding and mentoring students, ensuring that foundational skills remain a priority amidst the proliferation of AI tools. Key considerations include understanding how generative AI can enhance human interaction and identifying the essential skills that students need to thrive in a technology-rich environment. There is a need to bridge the gap between digital natives (i.e., students) and digital migrants (i.e., teachers) by equipping educators with the necessary skills to navigate this evolving landscape.

Accessibility remains a significant challenge in the adoption of AI in schools. Factors such as insufficient teacher training, limited digital resources, and student unawareness hinder effective implementation.⁴³ However, initiatives

42 “Annex III: High-Risk AI Systems Referred to in Article 6(2).” EU Artificial Intelligence Act. <https://artificialintelligenceact.eu/annex/3/>

43 UNESCO. (2022). State of the education report for India, 2022: Artificial Intelligence in Education; Here, there and everywhere. <https://unesdoc.unesco.org/ark:/48223/pf0000382661.locale=en>

like NEP, 2020 and extended internet coverage in rural areas may foster blended learning models in disadvantaged school districts, creating favourable conditions for the introduction of AI-enabled tools.

To address the myriad of potential issues associated with AI technology, it is imperative to formulate guidelines for responsible and ethical AI use in schools. With the Ministry of Electronics and Information Technology preparing to introduce a voluntary code of conduct for AI companies,⁴⁴ such a framework must incorporate stringent ethical guidelines specifically tailored for key sectors such as education. The principles of ethical AI in school education comprise fairness and non-discrimination, transparency, privacy protection, accountability, and inclusivity.⁴⁵

India must cultivate a growing understanding of AI, starting with the incorporation of AI education in school curriculums. Discussions surrounding academic integrity must expand to

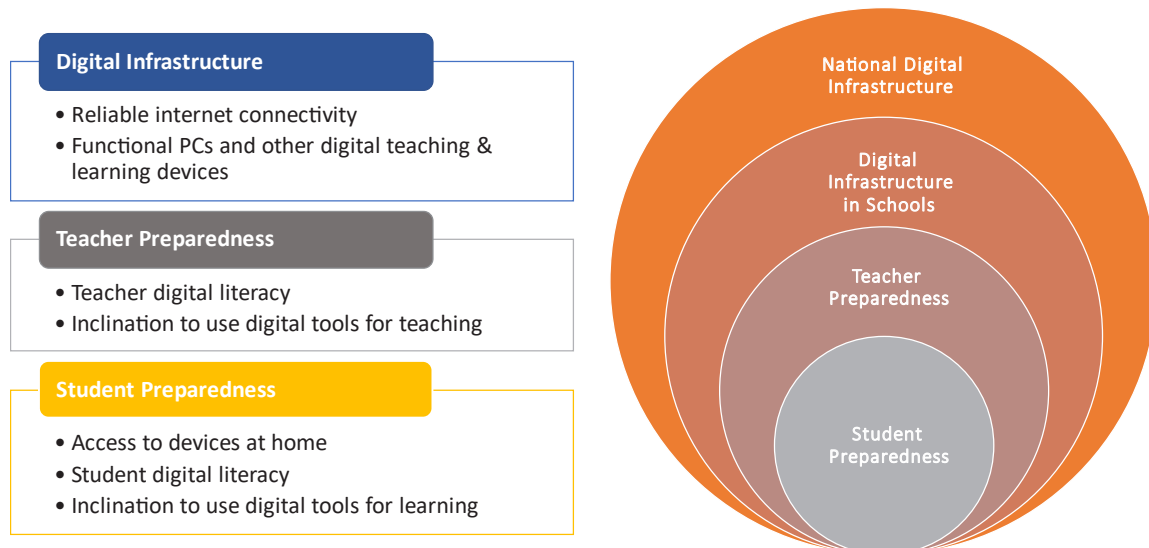
prepare students for a rapidly changing world, emphasizing the importance of critical thinking and adaptability.

Ensuring equal access to AI tools for all students is vital for creating a level playing field and fostering an educational environment that is both inclusive and forward-thinking. As AI becomes an integral part of education, a balanced and informed strategy will be crucial for maximizing its benefits while mitigating potential challenges.

4.1 AI Preparedness Framework

The integration of AI into educational environments necessitates a structured approach to assess and enhance the preparedness of schools. To prepare schools in India for the integration of AI in education, we propose an AI Preparedness Framework. This framework comprises four layers: National Digital Infrastructure, Digital Infrastructure in Schools, Teacher Preparedness, and Student Preparedness (see Figure 9).

Figure 9: The AI Preparedness Framework



Source: Authors' own

44 TOI Business Desk. (2024, November 19). Use of AI: MeitY readies voluntary ethics code for artificial intelligence firms. Times of India. <https://timesofindia.indiatimes.com/business/india-business/use-of-ai-meity-readies-voluntary-ethics-code-for-artificial-intelligence-firms/articleshow/115433686.cms>

45 Damodaran, A. (2024, June 22). AI in education-Impacts and challenges. ICSSR-Sponsored National Seminar on the Ethical Use of AI for Indian Society and Businesses, T. A. Pai Management Institute, Manipal.

Digital Infrastructure serves as the foundational element for the effective adoption of generative AI in educational settings. The framework has two layers addressing Digital Infrastructure; National Digital Infrastructure and Digital Infrastructure in Schools. The framework can leverage AI technologies and is intrinsically linked to the availability of robust digital resources, including reliable internet connectivity and functional computing devices. Disparities in access to these essential tools could lead to inequitable AI diffusion across schools, thereby exacerbating existing gaps in digital learning along various socio-economic lines.

Teacher Readiness is another component of the framework. The successful implementation of AI in teaching processes hinges on educators' ability to adapt to and utilize this technology. AI has the potential to alleviate routine administrative burdens and semi-automate grading, thereby allowing teachers to devote more time to developing innovative lesson plans, providing personalized mentorship, and engaging in professional development. However, the effective

implementation of this technology requires educators to possess basic digital skills, including proficiency in computer usage.

Lastly, **Student Readiness** is essential for maximizing the benefits of AI as a learning aid. AI can assist students in generating diverse ideas and perspectives for their assignments, but its effectiveness depends on students' comfort and competence with basic IT skills. This includes the ability to operate computers, navigate the internet, and utilize various digital mediums for learning. The cultivation of these skills is vital for students to harness the full potential of generative AI in their educational journeys.

The proposed AI Preparedness Framework underscores the importance of a holistic approach that addresses digital infrastructure, teacher adaptability, and student competency. By focusing on these pillars, India can foster an environment that is conducive to the effective integration of generative AI and work towards enhancing teaching and learning outcomes.

References

- “Annex III: High-Risk AI Systems Referred to in Article 6(2).” EU Artificial Intelligence Act. <https://artificialintelligenceact.eu/annex/3/>
- aiEDU. (2023). Pulse survey report. <https://www.aiedu.org/pulse>
- Central Board of Secondary Education. (n.d.). Artificial intelligence curriculum: Class 9 facilitator handbook. https://cbseacademic.nic.in/web_material/Manuals/AICurriculumHandbook.pdf
- Central Board of Secondary Education. (n.d.). Artificial intelligence integration across subjects for CBSE curriculum. https://cbseacademic.nic.in/web_material/Manuals/AIIntegrationManual.pdf
- Central Board of Secondary Education. (n.d.). Department of skill education curriculum for session 2023-2024: Artificial intelligence. https://cbseacademic.nic.in/web_material/Curriculum24/sec/417-AI-IX-X.pdf
- Central Square Foundation. (2023). Bharat Survey for EdTech (BaSE) 2023. <https://www.edtechbase.centralsquarefoundation.org/wp-content/uploads/BaSE-Report-web-version.pdf>
- Damodaran, A. (2023, October 19). Mitigating the learning crisis: How AI can help rebalance and transform school education. *Economic Times*. <https://economictimes.indiatimes.com/prime/technology-and-startups/mitigating-the-learning-crisis-how-ai-can-help-rebalance-and-transform-school-education/primearticleshow/104532811.cms?from=mdr>
- Damodaran, A. (2023, September 20). AI can transform school education, minimise drudgery to improve quality. *Business Standard*. https://www.business-standard.com/opinion/columns/ai-can-transform-school-education-minimise-drudgery-to-improve-quality-123092000543_1.html
- Damodaran, A. (2024, June 22). AI in education-Impacts and challenges. ICSSR-Sponsored National Seminar on the Ethical Use of AI for Indian Society and Businesses, T. A. Pai Management Institute, Manipal.
- Department for Education, Government of the United Kingdom. (2024). Use cases for generative AI in education: User research report. https://assets.publishing.service.gov.uk/media/66cdb078f04c14b05511b322/Use_cases_for_generative_AI_in_education_user_research_report.pdf
- Department of School Education and Literacy, Ministry of Education, Government of India. (2022). Report on Unified District Information System for Education Plus (UDISE+): 2021-22 flash statistics. https://dashboard.udiseplus.gov.in/assets/images/pdf/UDISE+2021_22_Booklet.pdf
- Holmes, W., Persson, J., Chounta, I.-A., Wasson, B., & Dimitrova, V. (2022). Artificial intelligence and education - A critical view through the lens of human rights, democracy and the rule of law. Council of Europe.
- IANS. (2023, September 11). UP students to learn basics of coding, AI from next year. *ET Education.com*. <https://education.economictimes.indiatimes.com/news/government-policies/up-students-to-learn-basics-of-coding-ai-from-next-year/103567650>

- IPCIDE. (2023, September 19). Session 1: AI as a transformational tool in school education. IPCIDE conference on generative AI in school education – Impacts and challenges. India. https://www.youtube.com/watch?v=0olkBOelQRI&ab_channel=ICRIER
- IPCIDE. (2023, September 19). Session 2: Responsible use of AI in school education. IPCIDE conference on generative AI in school education – Impacts and challenges. India. https://www.youtube.com/watch?v=0olkBOelQRI&ab_channel=ICRIER
- Klopfer, E., Reich, J., Abelson, H., & Breazeal, C. (2024, March 27). Generative AI and K-12 education: An MIT perspective. Massachusetts Institute of Technology. <https://doi.org/10.21428/e4baedd9.81164b06>
- Ministry of Human Resource Development, Government of India. (2020). National Education Policy 2020. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
- MIT Teaching Systems Lab. (2024). Teachers on AI. https://tsl.mit.edu/wp-content/uploads/2024/08/MITTSL_GenAIposter_8.2024-1.pdf
- National Statistical Office, Ministry of Statistics and Programme Implementation. (2022). National Sample Survey: Key Indicators of Household Social Consumption on Education in India July 2017 - June 2018. https://microdata.gov.in/nada43/index.php/catalog/151/related_materials
- NITI Aayog. (2018). National strategy for artificial intelligence. <https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf>
- Rajya Sabha Unstarred Question No. 1452. (2023). Artificial intelligence courses in every school. <https://sansad.in/getFile/annex/260/AU1452.pdf?source=pqars>
- Telecom Regulatory Authority of India. (2023). The Indian Telecom Services Performance Indicators Oct – Dec, 2022. https://traai.gov.in/sites/default/files/2024-09/QPIR_31052023_0.pdf
- Teri, D. (2022, April 1). Madhya Pradesh to introduce AI as subject from Class 8, ropes in Microsoft. Indian Express. <https://indianexpress.com/article/education/mp-to-introduce-ai-as-a-subject-from-class-8-ropes-in-microsoft-7845098/>
- The Digital Personal Data Protection Act, 2023. (2023, August 11). <https://www.meity.gov.in/writereaddata/files/Digital%20Personal%20Data%20Protection%20Act%202023.pdf>
- The Hindu Bureau. (2024, May 31). Kerala includes AI in school textbook. The Hindu. <https://www.thehindu.com/news/national/kerala/state-includes-ai-in-school-textbook/article68233075.ece>
- TOI Business Desk. (2024, November 19). Use of AI: MeitY readies voluntary ethics code for artificial intelligence firms. Times of India. <https://timesofindia.indiatimes.com/business/india-business/use-of-ai-meity-readies-voluntary-ethics-code-for-artificial-intelligence-firms/articleshow/115433686.cms>
- UNESCO. (2022). State of the education report for India, 2022: Artificial intelligence in education; Here, there and everywhere. <https://unesdoc.unesco.org/ark:/48223/pf0000382661.locale=en>
- UNESCO. (2023). Guidance for generative AI in education and research. <https://unesdoc.unesco.org/ark:/48223/pf0000386693>

Annexure: IPCIDE Conference on Generative AI in School Education – Impacts and Challenges - Agenda

IPCIDE Conference
on
Generative AI in School Education – Impacts and Challenges

Date: 19 September 2023, Venue: India Habitat Centre

Agenda

10:00 – 10:30 am : **Registration**

10:30 – 11:30 am : **Inaugural Session**

Welcome Remarks

Pramod Bhasin, *Chairperson, ICRIER*

Keynote Address

Professor Rangan Banerjee, *Director, Indian Institute of Technology Delhi*

Special Address

Monal Jayaram, *Director, Piramal Foundation*

Context-Setting Presentation

Deepak Mishra, *Director & Chief Executive, ICRIER*

A. Damodaran, *Distinguished Professor, IPCIDE, ICRIER*

Vote of Thanks

Mansi Kedia, *Senior Fellow, IPCIDE, ICRIER*

11:30 – 11:45 am : **Tea Break**

11:45 am – 1:15 pm : **Session 1: AI as a Transformational Tool in School Education**

Speakers

Professor H. K. Senapaty, *Former Director, NCERT*

Rajesh Ranjan, *Director, Government Affairs and Public Policy, Microsoft India*

Dr Vijay Datta, *Principal, Modern School*

Anjchita Nair, *Co-Founder and Chief Executive Officer, Cultre*

Pratik Rajurkar, *Co-Founder, Polymath AI; Teach For India alum*

Chair

Gowri Ishwaran, *Founding Principal, Sanskriti School*

1:15 – 1:25 pm : *Special Address*
Shri Rakkam A. Sangma, Minister of Education, Government of Meghalaya (**Virtual**)

1:25 – 2:15 pm : **Lunch**

2:15 – 3:45 pm : **Session 2: Responsible use of AI in School Education**

Speakers

Lt Gen Surendra Kulkarni, Director, Mayo College (**Virtual**)

Professor Pawan Sudhir, Professor and Head, Department of Education in Arts and Aesthetics, NCERT

A. N. Ramachandra, Former Joint Commissioner (Academics), Navodaya Vidyalaya Samiti (**Virtual**)

Purna Bose, Senior Solutions Engineer, Turnitin

Summiya Yasmeen, Co-Founder and Managing Editor, Education World: The Human Development Magazine

Arundhati Mitter, Director, Flow India (**Virtual**)

Satish Kumar, Data Scientist, Pratham Education Foundation

Chair

Kaushik Dasgupta, Associate Editor, *The Indian Express*

3:45 – 4:00 pm : **Tea Break**

4:00 – 5:30 pm : **Session 3: Global Perspectives on Responsible AI in Education**

Special presentation on IAPP's Artificial Intelligence Governance Professional (AIGP) certification programme

Joe Jones, Director of Research & Insights, International Association of Privacy Professionals (IAPP) (**Virtual**)

Speakers

Professor Anant Agarwal, Founder and Chief Executive Officer, edX; Professor of Electrical Engineering and Computer Science, Massachusetts Institute of Technology (**Virtual**)

Lidija Kralj, Leader of the AI in Education squad, European Digital Education Hub at European Commission; UNESCO Expert for AI & Data (**Virtual**)

Dr Manish Gupta, Director, Google Research India (**Virtual**)

Professor Sanjay Banerji, Professor of Finance, University of Nottingham Business School, University of Nottingham (**Virtual**)

Chair

Professor A. Damodaran, Distinguished Professor, IPCIDE, ICIRER

5:30 – 5:45 pm : **Conclusion and Vote of Thanks**

Shiva Kanwar, Research Associate, IPCIDE, ICIRER



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