



Original Article

SCOPE OF NEP 2020, NCF-FS 2022, AND NCF-SE 2023 IN ADDRESSING THE EDUCATIONAL NEEDS OF GENERATION ALPHA AND BETA

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ABSTRACT

Generation Alpha and Beta are poised to flourish in the wake of the catastrophic shift in artificial intelligence (AI) and robotics, which is poised to detach from the present, custom-bound society. Hence, it is of the hour that Generation Alpha and Beta need to accelerate through Education 4.0 to 5.0 to navigate and accommodate them into the Fourth and Fifth Industrial Revolutions (Industry 4.0 and 5.0), and they will witness the emergence of the Super Smart Society 5.0. Keeping these as a background, this article aims to describe the scope of NEP 2020, NCF-FS 2022, and NCF-SE 2023 in facilitating the transformation from Education 4.0 to 5.0 and in addressing the needs of Generation Alpha and Beta in India.

Keywords: NEP 2020, NCFFS 2022, NCFSE 2023, Gen Alpha and Beta, Educational Reform.

INTRODUCTION

Human resources are considered the most essential and prime resource among all other resources. Because it is the only intellectual species that becomes a thinker, creator, and decision-maker, and that identifies, manages, and effectively uses other resources. Young and energetic human beings can learn, adapt, and evolve to enhance productivity and growth. Skilled, competent, and healthy human resources contribute directly to a country's development. Education is the only tool that can transform adolescents into human capital, capable of making value-based decisions, showing empathy, and ensuring that development is sustainable and equitable.

With a population of 1.45 billion in 2025, India is the most populous country in the world, and with 356 million youths, it also has the largest young population globally. Various Indian stakeholders have a critical role in educational planning to effectively address the needs of the world's largest young population, which is essential for the optimal development and utilization of human resources. Planning for education, guiding individuals for professional development, and integrating them into various professions is a significant challenge for the Indian government. Because India is a subcontinent with immense diversity in terms of education and socio-economic development, it faces unique challenges and opportunities in implementing uniform educational policies. Keeping these as a background, the National Education Policy 2020, followed by NCF-FS 2022 and NCF-SE 2023, was introduced to address the educational needs of Generations Alpha and Beta and to transform them into human capital.

Educational planning for Generations Alpha and Beta is highly challenging, as we are moving toward Industry 4.0, which includes automation, digital transformation, and interconnected systems to improve efficiency and productivity. This will be followed by

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Industry 5.0, which articulates human-machine synergy, sustainability, and resilience, recognizing the importance of human ingenuity and well-being alongside technology. Ultimately, Generations Alpha and Beta need well-rounded development to flourish in the super-smart Society 5.0, where technology is used to tackle social challenges and enhance human well-being, rather than solely focusing on economic growth. This human-centric approach envisions a future where technology enhances people's well-being, improves quality of life, and addresses societal challenges.

UNDERSTANDING THE TRENDS OF LITERACY RATE IN INDIA

The Indian subcontinent is rich not only in natural resources but also in human resources. India had a flourishing Vedic education system in the north and Sangam literature and learning in the south. However, the Greatest Generation (GI Generation) in India began with only 9.2% literacy in the 19th century. By the time India gained independence, the Baby Boom Generation had an average literacy rate of just 18.33%. After independence, continuous efforts were made initially under the State List and later under the Concurrent List to promote literacy. As a result of these sustained initiatives, Generation Alpha has reached an estimated literacy rate of 77.7% as of 2021.

Table 1

Table 1 Trends in Literacy Rate in India					
S/N	Name of generation	Years of Born	Literacy Rate		
			Years	Total population (Crores)	% of literacy
1	The Greatest Generation (GI Generation)	1901-27	1901	23.84	9.2
			1911	25.21	5.9
			1921	25.13	7.2
2	The Silent Generation	1928-45	1931	27.89	9.5
			1941	31.87	16.1
3	Baby Boom Generation	1946-64	1951	36.11	18.33
			1961	43.92	28.3
4	Generation X	1965-80	1971	54.82	34.45
5	Millennial Generation or Generation Y	1981-96	1981	68.33	43.57
			1991	84.63	52.21
6	Generation Z or iGen	1997-10	2001	102.9	64.83
7	Generation Alpha	2010-24	2011	121.0	74.04
			Estimated		
			2021	141.42	77.7
8	Generation Beta	2025-39	2031	153	Aimed 100

Sources [Singh \(2013\)](#), [Statista \(2024\)](#), and [Cottrell \(2024\)](#)

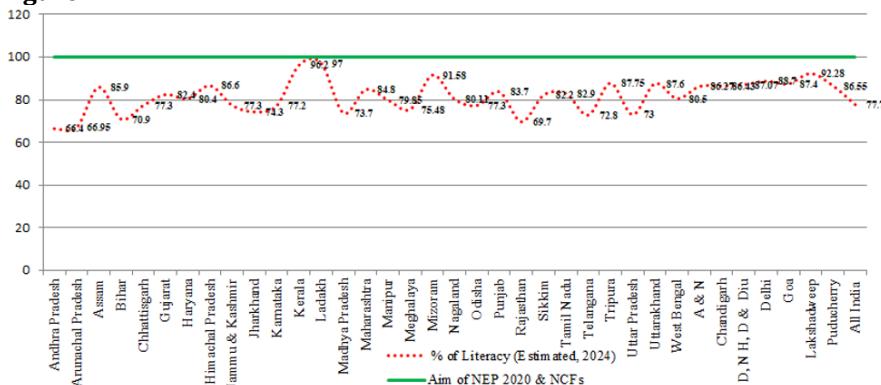
The Sarva Shiksha Abhiyan (SSA), launched in 2001, aimed to achieve Universal Elementary Education (UEE) for children aged 6–14 years. This was followed by the Rashtriya Madhyamik Shiksha Abhiyan (RMSA), initiated in 2009 to enhance access to and improve the quality of secondary education. To accommodate the increased number of students progressing to higher education, the Rashtriya Uchchatar Shiksha Abhiyan (RUSA) was launched in 2013, providing strategic funding to state-run higher educational institutions, including universities and colleges.

The Samagra Shiksha Abhiyan (SSA) is a comprehensive program launched in 2018 to unify and enhance school education across India. It integrates three previous schemes, Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA), and Teacher Education (TE), into a single framework, covering education from pre-school to Class 12. Aligned with the National Education Policy (NEP) 2020, the program strives to guarantee access to inclusive and fair quality education for learners at every level. The scheme has been extended for five years, from 2021–22 to 2025–26.

STATE-WISE LITERACY RATE

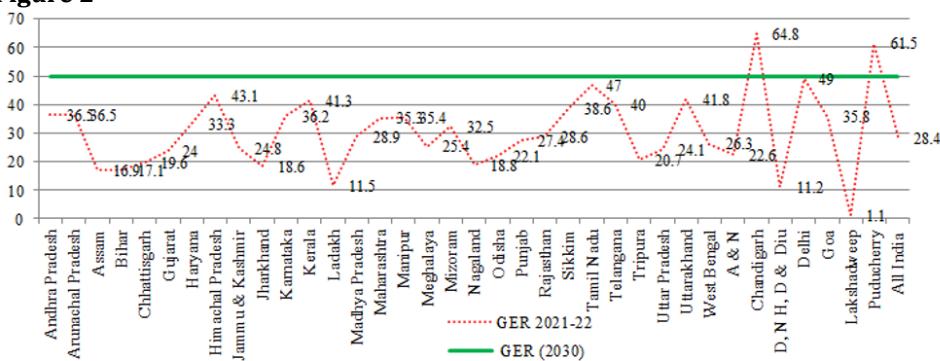
The National Education Policy (NEP) 2020 and the National Curriculum Frameworks (NCFs) aim to achieve a 100% literacy rate across India. However, reaching this milestone requires dedicated efforts and special attention from each state. Based on data from the Census 2011, the National Statistical Office (NSO), and the National Family Health Survey (NFHS-5), [Rana \(2024\)](#) has estimated

the literacy rates across the country. The findings reveal significant fluctuations in literacy levels among different Indian states, as illustrated in [Figure 1](#). Ladakh has made history by achieving a remarkable 97% literacy rate, becoming the first union territory to be recognized as fully "functionally literate." Kerala follows closely with a literacy rate of 96.2%, reflecting its status as one of the top-performing states in India in the field of education. In contrast, several states continue to struggle with low literacy levels. Andhra Pradesh records the lowest literacy rate among all states at 66.4%, followed by Arunachal Pradesh at 66.95% and Rajasthan at 69.7%, highlighting the regional disparities in educational attainment across the country.

Figure 1**Figure 1 State-Wise Literacy Rate**

STATE-WISE ENROLMENT IN HIGHER EDUCATION

At present, the Gross Enrolment Ratio (GER, Fig. 2) is 28.4% (2021–22) (AISHE, 2022), but the NEP 2020 strives to raise the Gross Enrolment Ratio to 50% by 2030. However, Chandigarh (64.8%) and Puducherry (61.5%) have already attained the GER target set by NEP 2020 [Figure 1](#). Some states, such as Himachal Pradesh (43.1%), Kerala (41.3%), Tamil Nadu (47.0%), Uttarakhand (41.8%), and Delhi (49.0%), are very close to achieving this goal. These states and UTs need to adopt customized strategies to further promote higher education and maximize the GER to compete with globally advanced countries, such as the United States (79.36%) [Trading Economics \(2025\)](#), Canada (60%) [Statista \(2025\)](#), South Korea (75%) [Statista \(2025\)](#), Japan (63.17%) [Trading Economics \(2025\)](#), and Australia (53%), among others [HERS \(2023\)](#).

Figure 2**Figure 2 Enrolment in Higher Education (2023-2024)**

On the other hand, the Gross Enrolment Ratio (GER, Fig.1) in states such as Assam (16.9%), Bihar (17.1%), Chhattisgarh (19.6%), Jammu and Kashmir (24.8%), Jharkhand (18.6%), Ladakh (11.5%), Meghalaya (25.4%), Nagaland (18.8%), Odisha (22.1%), Punjab (27.4%), Tripura (20.1%), Uttar Pradesh (24.1%), West Bengal (26.3%), Andaman and Nicobar Islands (22.6%), Dadra and Nagar Haveli and Daman and Diu (11.2%), and Lakshadweep (1.1%) is below the national average of 28.4%. These states need special attention to reach at least the national average and require an action plan to increase their GER to attain the NEP 2020 vision of 50%. The GER in the remaining states is above the national average (28.4%), but they still require customized approaches to achieve the NEP 2020 target of 50%.

NATURE OF GEN ALPHA

For the next few decades, NEP 2020 and NCFs, along with parents, teachers, and other stakeholders, need to focus on planning and working together to support the largest youth population in the world, Generation Alpha and Beta, who are growing up in a fully digital world. Understanding their educational needs and adopting appropriate pedagogical approaches is the need of the hour to ensure 100% school education and to maximize enrollment in higher education.

The following characteristics of Generation Alpha need to be addressed during educational planning [McCrindle et al. \(2020\)](#), and [United Nations International School of Hanoi \(2025\)](#).

Digital natives and diverse to Artificial Intelligence (AI): Gen Alpha are the true digital natives, navigating a universe where technology is woven into every facet of their learning and playtime. They grow up with access to and learn through smartphones, tablets, the internet, social media, videos, interactive apps, augmented Reality and Virtual Reality (AR/VR) experiences, and gamified platforms, making them highly visual and interactive learners who naturally embrace digital literacy. They are typically comfortable using AI-powered systems that understand and respond to their needs, creating a sense of human-like engagement. However, this reliance on digital interaction could cause social isolation and hinder real-world interpersonal skills, which may have an effect on Generation Alpha, the first group to be raised in a world shaped completely by artificial intelligence.

Global Ambassador: Generation Alpha is an everyday ambassador of global culture. With instant access to the world through the internet, social media, and global platforms like YouTube, online games, and digital content, they are constantly exposed to diverse perspectives, trends, and ideas. This continuous interaction fosters broader worldviews and quick adaptability. As digital global citizens, Gen Alpha regularly communicates, learns, and collaborates with peers across borders. These experiences naturally cultivate cross-cultural understanding and empathy. They are also increasingly conscious of worldwide challenges like climate change, social justice, and diversity. Many actively engage in global conversations, online campaigns, and virtual forms of activism, reflecting their early sense of social responsibility. Moreover, exposure to various languages, accents, cuisines, and cultural practices helps them grow into open-minded, culturally sensitive, and inclusive individuals from a young age.

Mental health champions: Generation Alpha is growing up in a highly competitive and achievement-oriented era. As a result, they are naturally emerging as champions of mental health and are emotionally and psychologically driven, recognizing the importance of emotional care and well-being from an early age. This makes them an emotionally resilient generation.

Free spirits: Generation Alpha is often described as a generation of self-directed, independent mavericks, embracing a spirit of self-reliance, confidence, and self-motivation, and showing no fear in challenging norms. They exhibit high levels of independence, quickly navigate the digital landscape, and possess a strong sense of autonomy. They acquire knowledge independently and prefer making their own decisions, exploring, and figuring things out for themselves.

Entrepreneurial and creative wizards: Generation Alpha is being raised in an environment shaped by instant access to technology, creative platforms, and global connectivity. From an early age, they use a variety of creative tools to experiment with content creation, digital art, and small-scale entrepreneurship. With a strong maker mindset, they learn to design, test, adapt, and innovate independently. Far from being passive consumers, Gen Alpha actively leverages technology to bring their ideas to life. They are natural-born innovators, constantly reimagining how things work and showing the traits and spirit of true entrepreneurs. Fearless in trying new ideas, learning from failure, and trying again, they are evolving into entrepreneurial thinkers and creative problem-solvers—often referred to as the “creative wizards” of their time.

Data saturated: Generation Alpha possesses innate traits that enable them to navigate a world overloaded with data. Their ability to readily access abundant information helps them make data-driven decisions and fosters a sense of accountability. Modern algorithms shape the content they consume, and the constant influx of data influences their understanding of the world from an early age. This exposure makes them comfortable with digital tools and information access. As a result, Gen Alpha is developing strong digital literacy, effective information filtering skills, and an early awareness of digital footprints, privacy issues, and basic data security.

Eco activism: Generation Alpha exhibits a conscious and passionate attitude towards the environment, demonstrating signs of being more “eco-active” than previous generations. They are increasingly engaging in environmentally friendly practices such as recycling, minimizing the use of packaging and single-use materials, avoiding fast fashion, and opting for sustainable, green products. Furthermore, through experience-based education, Generation Alpha is being encouraged to invent and find solutions to address contemporary environmental challenges.

NATURE OF GEN BETA

[McCrindle et al. \(2020\)](#) and [United Nations International School of Hanoi \(2025\)](#) describe Generation Beta as children born between 2025 and 2039. They are the first cohort expected to grow up in a world shaped by quantum computing technologies. Generation Beta's lives will begin in a digitally smart society enabled by Artificial Intelligence (AI) and Virtual Reality (VR). These

technologies will expand how they interact with computer-generated environments, particularly in areas such as education and socialization.

As teachers transition into the role of knowledge navigators, there will be a significant shift toward tech-driven, personalized learning. The use of AI tutors, VR classrooms, and digital tools will enable tailored, efficient, and optimized learning experiences. We are entering an era where hard work meets smart work, particularly for Generation Beta. Their careers will increasingly emphasize creativity and emotional intelligence, which will become crucial skills in a world where automation continues to expand.

Gen Beta is going to flourish in nonconventional global social norms; they may endorse cultural inclusivity, empathy toward universal brotherhood, eco-conscious lifestyles, and collective understanding. They are the first generation going to enjoy advanced technologies such as full integration with artificial intelligence (AI), virtual reality (VR), and the Internet of Things (IoT). The smartphone may be replaced by brain-computer interfaces or technologies beyond our current imagination. They live in tech-integrated families, think out of the box, create designs, and excel in storytelling using several AI tools [Jain \(2025\)](#).

Unregulated consumption of natural resources leads to critical environmental crises; therefore, Generation Beta is compelled to embrace ethical consumption and environmental stewardship. For them, sustainability will become an integral part of daily life rather than just a mere choice. They must prioritize sustainable lifestyles and advocate for environmental policies that support renewable energy and conservation. From an early age, Gen Beta needs to make climate-conscious decisions, favoring brands and practices that minimize environmental harm. They are also expected to leverage innovation to address sustainability challenges, ultimately redefining consumption as a responsibility rather than a privilege.

NEP 2020 AND NCFS: EDUCATIONAL STRATEGIES FOR GENERATIONS ALPHA AND BETA IN THE ERA OF EDUCATION 5.0

The NEP 2020 and NCFSs aim to design an inclusive education system to serve the world's largest Generation Alpha and Beta population. Its vision is to enrich school education, achieve 100% literacy, and increase the Gross Enrollment Ratio (GER) to 50%. However, a major challenge lies in effective pedagogical planning. Rapid social changes, the booming ICT, and the ongoing industrial revolution present both opportunities and demands for reimagining how education is delivered to these emerging generations.

Education 5.0 is a conceptual, futuristic, and human-centric approach to education that personalizes learning, ICT blending, holistic development, and values. It moves beyond just digital learning to include well-rounded development, which includes emotional intelligence, ethics, well-being, creativity, human-centric collaboration, and resilient innovation.

Table 2

Gen Alpha and Beta pedagogy	NEP and NCFSs Alignment
Personalized and Flexible Learning – Prefer self-paced, personalized experiences, Short attention spans, and high engagement with digital platforms.	Emphasis on flexibility in curriculum and pedagogy. Multiple entry-exit points in higher education shift from rote learning to competency-based, experiential learning. Provision for multiple entry and exit points in education. Encouragement of multi-disciplinary choices in higher classes and the Academic Bank of Credit.
Technology Integration – Digital natives, Early adopters, and comfortable with AI, VR, AR, gamified apps, instant access to information, and brain-computer interfaces.	Promotion of Blended Learning, Digital Learning Platforms. National Digital Education Architecture (NDEAR) and Ed-Tech integration. Emphasis on ICT skills, coding, and computational thinking from early grades, Encouragement of AI, robotics, and emerging tech exposure.
Critical Thinking and Creativity – Curious, inventive, demand relevance and real-world application.	Stress on inquiry-based, discovery, and project-based learning. Shift from rote learning to competency-based education emphasizes critical thinking, problem-solving, design thinking, creativity, and entrepreneurial mindsets. Inclusion of art-integrated and sports-integrated learning.
Holistic and Multidisciplinary Learning - Thrive in environments that support social-emotional learning and real-world connections.	Introduction of Holistic Progress Cards. Integration of life skills, values education, and mental health awareness. Focus on experiential learning with community engagement and local context.

Collaboration and Social Learning - Collaborative, thrive on social interaction through digital and real platforms.	Encourages group activities, peer learning, and interactive classrooms. Emphasis on arts, sports, and life skills. Emphasis on constructivist approaches where students co-create knowledge. Classroom design and pedagogy reflect student-centric and interactive spaces.
Global Citizenship and Sustainability - Global thinkers are concerned about social justice, climate change, and inclusion.	Education for Sustainable Development (ESD) and Global Citizenship Education (GCED) are included. Focus on 21 st -century skills, ethics, and constitutional values.

The NEP 2020, followed by the NCFs, is laying the foundation for Education 5.0 strategies to prepare young human resources to thrive in Society 5.0, a super-smart society that integrates physical, digital, and biological spaces to address societal challenges and foster holistic human development. These policies promote holistic and multidisciplinary education, with an emphasis on flexibility across disciplines such as science, arts, humanities, and emerging technologies. To cultivate skills essential for success in a super-smart society, the policy encourages cross-disciplinary thinking and the integration of advanced technologies like AI, IoT, big data, and Robotics. Society 5.0 also embraces the principles of global citizenship, focusing on ethics, values, environmental sustainability, and social responsibility, thereby supporting a human-centric approach at its core.

The National Education Policy (NEP) 2020 and the National Curriculum Frameworks (NCFs) are laying the foundation for an education system that prepares learners for Society 5.0, a society where digital transformation is harnessed to solve complex human challenges. Society 5.0 envisions a human-centered, technology-driven world where the integration of Education 5.0 and Industry 5.0 fosters innovation while enhancing human well-being. Both paradigms aim to develop technological solutions that not only improve productivity but also promote sensitivity, creativity, and ethical intelligence. Society 5.0 becomes a truly fortunate evolution where education, industry, and technology converge to build a more inclusive, sustainable, and adaptive future for all. At the core of this transformation lies the use of Cyber-Physical Systems (CPS), enabling intelligent control and human-machine collaboration.

CONCLUSION

With the highest number of young people, India is poised to become the richest hub of human capital. The NEP 2020 and National Curriculum Frameworks (NCFs) are visionary frameworks that recognize the transformative potential of Education 5.0 in preparing India's youth for the super smart Society 5.0. By focusing on holistic, well-rounded development, technology integration, and value-based education, they address the distinct needs of Indian Generation Alpha and Beta. The integration of Artificial Intelligence (AI), Cyber-Physical Systems (CPS), and personalized learning environments aims to develop learners who are not only professionally ready but also eco-active, empathetic, creative, and responsible global citizens. However, to fully realize this vision, India must invest in inclusive implementation, state and region-specific strategies, and infrastructure readiness, ensuring that all children across India's diverse regions benefit from this educational revolution.

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