

NEXT IAS

**DAILY EDITORIAL
ANALYSIS**

TOPIC

**DEVELOPING MINDS IN A DIGITAL
WORLD, A CHANGING INDIA**

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DEVELOPING MINDS IN A DIGITAL WORLD, A CHANGING INDIA

Context

- There are concerns regarding rapid growth of digital media and generative Artificial Intelligence (AI) and their possible effects on children's cognitive development, attention, emotional well-being and learning.

About Digital Technologies

- Digital technologies encompass smartphones, social media, online gaming, educational applications and AI-powered platforms.
- While they facilitate access to information, personalised learning and creativity, their increasing integration into children's lives raises concerns about excessive screen exposure and dependence on automated assistance.

Understanding the Developing Brain

- The brain experiences considerable changes in both structure and function during childhood and adolescence.
 - ♦ The **prefrontal cortex**, responsible for attention, working memory, planning and impulse control, keeps developing right through into early adulthood.
- **Neuroplasticity** (brain's ability to adapt through experience) makes young people particularly responsive to their environments.
 - ♦ As a result, digital experiences could have an effect on cognitive development, even though current research has not proven that exposure to screens necessarily leads to harmful neurological changes.

Arguments Favouring Digital Technology for the Developing Brain

- **Enhanced Learning:** Digital platforms offer a variety of educational materials and the chance for personalised learning.
- **Cognitive Adaptability:** The ability to adapt cognitively can enhance skills involved in filtering information and improve technological competence when dealing with digital environments.
- **Creativity & Collaboration:** Digital tools allow children to create content, share their ideas and work together across geographical boundaries.
- **AI-assisted Learning:** Generative AI can aid with brainstorming, provide feedback and help with conceptual understanding when used appropriately.
 - ♦ As a result, technology can accompany traditional learning and help children get ready for a more digital economy.

Arguments Against Digital Technology for the Developing Brain

- **Attention Fragmentation:** Attention is fragmented because short videos, infinite scrolling, autoplay, and algorithmically recommended content all prompt continuous engagement and cause a quick switching between tasks.
- **Emotional Vulnerability:** The emotional vulnerability of adolescents can be influenced by social comparison, online validation, and cyberbullying in terms of their self-esteem and psychological well-being.
- **Cognitive Offloading:** Relying too much on answers generated by AI could lead to a decline in independent reasoning, critical thinking, and problem-solving abilities if students skip the learning process.
- **Reduced Reflection:** Constant stimulation leaves less opportunity for boredom, imagination, introspection, and creative exploration with reduced reflection.
- **Disrupted Routines:** Disrupted routines can result from excessive use of screens for recreation, as this may lead to sleep being displaced, physical activity being given up, and face-to-face interaction being lost.
 - ♦ The results are determined not just by the amount of time spent on the screen but by the content consumed, the duration of use, the surrounding context and the individual circumstances.

India's Case

- There are about **65 crore people in India** who are **under 25 years of age**, and has one of the largest digital ecosystems in the world.
- Because of the COVID-19 pandemic, children became more dependent on online education and entertainment.

- The demographic transition involves two challenges: overcoming the digital divide and avoiding unhealthy digital dependence.
 - ♦ The problem is further complicated by unequal access to devices, a lack of digital literacy and insufficient parental supervision.

Related Key Measures and Efforts: India and Global

- **Information Technology Act, 2000** and the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021** (as amended) to ensure a safe, secure and accountable online environment for users, **including children**.
- **Digital Personal Data Protection Act, 2023:** Establishes protections concerning children's personal data, including parental-consent requirements, subject to applicable provisions and exemptions.
- **National Commission for Protection of Child Rights (NCPCR):** It has developed several resources **to promote online safety**.
 - ♦ These include the **'Being Safe Online'** guidelines for awareness among children, parents, educators and the public;
 - ♦ **Manual on Safety and Security of Children in Schools** incorporating guidelines for prevention of cyberbullying;
 - ♦ **Guidelines on Preventing Cyber Bullying for school children** issued in 2024.
 - ♦ 'Effects (Physical, Behavioural and Psycho social) of using mobile phones and other devices with internet accessibility by children' (**national level study**) to understand physical, behavioural, and psycho-social effects on children of using mobile phones and other devices with internet accessibility.
- **National Education Policy (NEP), 2020:** Emphasises digital education while recognising the importance of holistic development.
- **PRAGYATA Guidelines, 2020:** Provide guidance on digital education, including age-sensitive recommendations for online learning.
- **WHO Guidelines, 2019:** Recommend limiting sedentary screen time for children under five.
- **UNICEF Policy Guidance on AI for Children, 2021:** Promotes child-centred, safe and inclusive AI development.

Way Forward: Strengthening Measures

- **Families:** Establish device-free meals, protected study hours, healthy sleep routines and opportunities for outdoor play.
- **Schools:** Encourage independent writing, oral examinations, practical problem-solving and responsible AI-assisted learning.
- **Government:** Strengthen age-appropriate safeguards, privacy protections and accountability for platforms targeting children.
- **Technology companies:** Improve transparency around recommendation algorithms and reduce manipulative engagement mechanisms.
- **Research institutions:** Support longitudinal studies examining digital exposure, cognition and emotional development in Indian children.
- **Digital literacy:** Educate children, parents and teachers about responsible technology use, misinformation and AI limitations.

Conclusion

- India's objective should not be to reject technology but to humanise its use. A developing mind needs information alongside reflection, assistance alongside independent effort, and digital engagement alongside real-world experiences.

Source: TH

Daily Mains Practice Question

- [Q] Examine the impact of digital technologies on cognitive development, learning and emotional well-being and analyse the opportunities and challenges associated with this digital transition.