

## Smart Technology, Digitalized Education Model and Young Vulnerable Brains in India: A Current Situational Analysis

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**Abstract:** *It's a well-known fact that technology has become ingrained in daily life. Technology is so entrenched in every aspect of life that it's impossible to imagine our life without technology. If you take away the phone from a person he feels as if he is living in a stone age. Absence of technology makes us feel handicapped.*

*Technology in education is a revolution enabling delivery of critical resources possible for millions of students at the same time. Online classes or webinars had become a norm these days, especially after the Covid pandemic when physical assembly was not possible and students had to study at home aided by electronic tools like Zoom or Teams to attend virtual classes. It became essential to provide portable electronic devices like laptops, smart phones, or tablets to children to participate in online classes or assignments or refer to study material. But this blessing turns out to be a curse when parents find their children addicted to online games or chatting with strangers on social media or browsing inappropriate or age-restricted content. Excessive use of technology causes numerous mental, psychological, and behavioral issues in children.*

*This research paper has analyzed the positive and negative impact of digital technologies on children. The researcher has conducted doctrinal research based on secondary data. Data has been collected from authentic sources such as the WHO, NCPCR, ASER, India today poll, AIIMS, and the State gov. portal.*

*Online education has set a new standard in recent years. However, removing technology from your children is impossible. While distance education, in particular, necessitates the use of technology, parents should closely monitor their children's digital footprints, screen time, browsing history, and other content or information they consume. The researchers concluded that it is critical to be mindful of children's electronic behaviors on a regular basis and to put reasonable restrictions if they are crossing the boundaries.*

**Abbreviations:** WHO- World Health Organization, NCPCR- National Commission on Protection of Child Right, ASER- Annual Status of Education Report ,AIIMS- All India Medical

**Keywords:** Critical-Thinking Skills, Digitalized Education, Next Generation of Technologists, Smart Technology

### Introduction

Online education has become the new normal during pandemics. The use and misuse of technology in youngsters have multiplied as a result of e-education. It's rare to find children and adolescents without any gadget or smart phone in their hand ubiquitously whether they are traveling or in colleges or parks. However, it's of grave concern that all youngsters including toddlers and children are getting rapidly hooked on digital gadgets as it adversely impacts their overall development both physically as well as psychologically. While there is much furor about the negative impact of technology in media but technology also has an important role to play in education which has been recognized especially during the pandemic when most classes were conducted in online mode.

On the other hand reporting of medical and psychological issues like lack of concentration, sleeplessness, depression, and technological addiction has increased among kids. A few such instances have been shared by child psychologists of All India Institute of Medical Sciences (AIIMS), Delhi. According to Dr. Rachana Saxena of IIMS, "A five-year-old kid get so much use to of his father's mobile phone that he couldn't sleep until he played a few games. His mother took him to the pediatrician because of problems of sleeplessness, anxiety, and tantrums." Yuvaan was referred to a child psychologist at that point. There Dr. Rachana suggested that he should stay away from his mobile phone and instead should be kept occupied with books and toys.

According to a report published in 2018 by "AIIMS and the Ministry of Science and Technology's Department of Biotechnology, every third child among the 7,000 students surveyed at Delhi's private schools was obese. Cases of mobile phone addiction are on the rise among children who are beginning to show

indicators of health problems. Many of them are hooked to games like PUBG, Candy crush, BGMI, etc.” Thousands of such anecdotes can be found in the archives of child psychologists. Because of the overuse or abuse of technology, physical, mental, social, and psychological conduct has become a point of concern for parents.

The World Health Organization (WHO) recently released “*Guidelines on physical activity, sedentary behavior and sleep for children under 5 years of age*” which states that infants and children under the age of one should not spend any time looking at electronic screens. According to the analysis, children aged two, three, and four should be limited to one hour of screen use every day, and the fewer the better.” According to WHO research “Reduced obesity, enhanced motor and cognitive development, and psychosocial health are all benefits of less screen-based sedentary behavior (TV viewing, watching videos, playing computer games),”

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### Use of Technology by Children in India

According to the “Indian Annual Status of Education Report (ASER) survey released in the second half of 2021, over a quarter of rural households purchased smart phones for their children's academic needs in the face of an outbreak”:

In 2018, 36.5% of rural Indians had access to smart phones, according to the ASER poll, which rose to 61.8% in 2020 and further increased to 67.6% in 2021. There has been a dramatic increase in the number of rural households with mobile phones in the last three years, but a quarter of children with digital devices in their homes are unable or unwilling to use them.

Rural India has a smart phone penetration rate of 36.5% in 2018, rising to 61.8% in 2020 and 67.6% in 2021, according to the study. In addition, at least 27.9% of rural Indian households purchased a new smart phone this year for the education of their children. As of the previous year, this percentage was 9.1%.

A smart phone isn't necessarily a sign that a person has access to education, according to a report. “Moreover two-thirds of all enrolled students (67.6 percent) have a smart phone at home, yet over a quarter of them do not have access to it (27.4 percent).” Grade-level differences are also evident, with older students having greater access to smart phones than younger students.

Last year, the Covid-19 outbreak in India caused all schools to provide classes online, so mobile phone access became critical for education. Teachers used smart phones to deliver reading materials and conduct courses electronically for over a year. In recent months, schools around the country have only begun to open.

A total of 27% of the 67.6% of children polled who had access to a smart phone at home said they had full control over it, 47% said they had access to it only on rare occasions, and 26.1 percent said they had none at all.

A total of 76,706 households, 75,234 kids aged 5 to 16, and 7,300 school employees from 25 states and three union territories participated in the study.

The poll indicated an increase in the number of pupils who had access to cell phones regardless of the type of school they attended. When it comes to government school students, 29.6 percent of those enrolled in 2018 had at least one smart phone in their family. In 2020, this percentage rose to 56.4%, and by 2021, it had risen to 63.7%. While 79% of private school students have a smart phone at home, only 63.7 percent of public school students have, according to the research:

- At 97.5 percent, Kerala had the highest percentage of registered students who had smart phones in their homes. Himachal Pradesh came in second with 95.6%, followed by Manipur and Nagaland with 92.9% each, and Punjab with an even lower figure of 89.9%.
- Some states, on the other hand, reported a low level of smart phone accessibility. For example, 54.4 percent of pupils in Bihar had digital devices at home, 58.4 percent in West Bengal, and 58.9 percent in Uttar Pradesh.
- Students in Bihar (53.8%) lacked access to a smart phone despite having one at their house, whereas in West Bengal it was (46.5%), followed by Uttar Pradesh (34.3%), and then Rajasthan (33.3%).

Educated parents are more likely to own a smart phone, according to a new survey. Children whose parents had studied at least through the ninth grade were more likely to have smart phones at home in 2021 than those whose parents had only studied until the fifth grade, according to the report. Many economically backward households were compelled to buy smart phones to fulfill the educational needs of their children during the pandemic.

### According to the Research Conducted by NCPCR (2021)

- 59.2 percent of youngsters use their smart phones for instant messaging apps, while just 10.1 percent prefer to use them for online learning and education. According to a report from the NCPCR, 2021
- "Approximately 59.2% of children use their smart phones/internet devices for 'chatting' (through WhatsApp/Facebook/Instagram/Snapchat)." "On the other hand, only 10.1 percent of children choose to use cellphones for online learning and education," according to the survey. The report, titled "The Effects (Physical, Behavioral, and Psychosocial) of Using Mobile Phones and Other Devices with Internet Accessibility by Children," claims that "30.2% of children of all ages have their own smart phone."
- "It is also interesting to note that 30.2 percent of youngsters of all ages (8 to 18 years) currently own their own smart phones and utilize them for all purposes," the survey says.
- Surprisingly, 37.8% of 10-year-olds have a Facebook account, while 24.3% have an Instagram account. Whereas, according to Facebook's or Instagram's official statements, you must be over the age of 18 to create an account. Is the person over the age of 18 or not? Who is responsible for the check?
- From the age of 13 onwards, the percentage of children using their own smart phones has been steadily increasing. Children utilizing laptops/tablets to access the internet, on the other hand, appear to be consistent across all ages.
- According to the survey, this can lead to the conclusion that parents/guardians are more willing to provide cell phones to their children from the age of 12-13 years onwards than a laptop or tablet.
- This study was conducted on 5,811 participants in all, including 3,491 school-aged children, 1,534 parents, and 786 instructors from 60 schools in six states around the country.
- It was a national survey of all regions (East, West, North, South, and North-East), with 15 places chosen from three areas, 1,000 respondents per region, and stakeholders such as students, parents, and instructors.
- The age distribution of all the children who took part in the study was also varied, with the mean age of the children being 14.05 years and the median being 14 years.
- According to the findings, there is a direct link between age and having a social media account. "Using a phone before going to bed has negative consequences for youngsters, such as sleep difficulties, insomnia, anxiety, and exhaustion," the study finds.
- While the poll found that 72.70 percent of instructors had never used a smart phone in the classroom, 54.1 percent felt that using a smart phone in the classroom is "very or somewhat distracting."
- At the AIIMS behavioral Addiction Clinic, experts focused on early diagnosis and prevention of internet addiction say that parental supervision of their children is crucial. "To ensure a reduction in screen time, parents must introduce other life skills to youngsters," according to the report.

### How Technology Has Benefited Children In A Positive Way?

**Aids to the Educational Learning:** To improve the quality of the educational experience for students, technology has grown increasingly prevalent in the classroom in recent years. With the advent of new educational technologies, teachers and students alike may work together more effectively and creatively than ever before. Teachers and students benefit from more project-based learning and improved creativity in the classroom when working together more frequently. In addition, educational tools for children at home have helped toddlers to learn basic skills and help in teaching youngsters the alphabet, numbers, and even the arts.

**Encouraging Critical-Thinking Skills:** Survival mode, have you heard of it? In many children's video games, the player is challenged with surviving as long as possible in order to outlive their opponents. For example, in the famous video game PUB-G, CONTRA, players are dumped into new and distinct surroundings and must quickly build shelter and collect items such as food, in order to survive and outlive their adversaries. The next generation is a smarter generation, and that is the reason elderly people can never compete with the young generation when it comes to Critical thinking, smarter solution, or Survival mode.

Young people must work on their own to accomplish a specified goal with these kinds of tools. They're confronted with a variety of obstacles and problems as they progress through the procedure. As a result, they'll be inspired to come up with their own answers to real-life problems, such as schoolwork difficulties, arguments with friends, personal hardships, as well as technological impediments.

**Educating Next Generation of Technologists:** It's widely accepted that many of today's new technologies will play a significant role in shaping our future. The importance of technical skills in the job and in everyday life will continue to rise in the years to come. Children who grow up with exposure to technology will be better equipped to compete for high-paying tech jobs in the future.

Introducing digital skills to youngsters at an early age can help them prepare for a successful career in a field that is expected to grow at a rapid pace in the future. Technology changing at a high pace today's technology will be outdated tomorrow. We need to prepare the next generation of technologists. We cannot deny the fact that many negative impacts can be linked to technology use, but there are also many positive impacts.

**Improved Multitasking Capabilities:** Studies have shown that young toddlers learn to multitask more effectively when they use technology. To be successful in the future, kids can learn the art of multitasking, such as listening and typing while taking notes or other multitasking activities.

**Visual-Spatial Development Has Been Improved:** The spatial development of young students and children can be considerably enhanced by the usage of technology like video games. Playing video games to develop one's visual-spatial skills is an excellent approach to it. There is a multitude of uses for visual-spatial skills, such as map reading, puzzle solving, and more.

### How Technology Has Affected Children In A Negative Way?

**Adolescent Obesity and Tech:** When kids spend more time typing or clicking on a computer, they spend less time outside or doing physical activities. Mindless consumption has been linked to children and teenagers who play video games or watch TV. Obesity rates among children and adolescents are rising. While kids are naturally lured to a variety of shows, video games, and apps, parents must ensure that their kids get enough time outside and exercise. Encourage your kids to play outside. If we can, join your kids outside. In a park, we can play games like hide-and-seek or tag, or throw a Frisbee. Plus, you'll get to spend more time with your family and help your kids sleep better.

**Lack of Social Development in Children:** Technological breakthroughs have drastically changed how we communicate. Even as adults, we prefer texting to calling. Our online behavior typically differs greatly from our offline behavior. These differences not only affected adults. This can lead to low self-esteem in kids who use social media a lot. Seeing selected content, like a digital highlight reel, can cause anxiety and self-doubt in teens. Excessive usage of technology can increase children's social and behavioral disorders by reducing their time spent engaging with others.

We need to keep an eye on your child's social media activities and the websites and games they visit. Set up parental controls on PCs, smart phones, and tablets to block problematic websites and apps. Set up a communal space where you can monitor your child's computer, game console, or television.

It's also vital that our child engages in social activities. Invite friends over and encourage socialization. Joining a sports league is another great way to limit screen time and encourage physical activity and social interaction in your kids. So they can join up on organized activities and socialize with other kids their age.

**Wasting Our Time with Technology (?):** We can watch movies or listen to music on different apps or listen to the radio all the day. You can watch a show or listen to music almost instantly online, and even skip the advertising. As a result, a generation of kids is wired for instant gratification. Smart phones and tablets

with their continual assault of sounds and notifications hinder people's ability to concentrate. According to a Canadian study, the average attention span has shrunk from 12 seconds to 8 seconds since the early 2000s.

We need to teach our kids, limiting technological use when they are busy is one task. Ban cell phones when kids are doing homework, encourage family interaction at mealtime, and turn off the TV while kids are reading. Allow your kids to unplug and reconnect. Getting outside and enjoying non-screen activities like board games, reading, and puzzles can be very useful for the holistic development of children.

**Relationships and Interpersonal Skills Suffer:** Young people prefer texting, social media, and online gaming to meeting in person as mobile devices become more widespread. Abuse of technology also threatens social communication abilities. Taking turns in conversation, using facial expressions, molding your voice to the listener (for example, speaking to a newborn versus an adult), and maintaining eye contact are all skills that can be developed over time. Screen time limitations can increase children's chances for human interaction.

**Health Issues:** Excessive use of mobile devices can affect children's health by reducing physical exercise. Kids are becoming couch potatoes. Kids who prefer screen time to physical activity are more prone to mindless snacking and other unhealthy habits. Less time spent outside playing, jogging, and burning calories is harmful to their health. These habits can lead to weight gain and other health risks.

**Reduces Sleep Quality:** According to a JAMA Pediatrics Study, children and adolescents who use media before bedtime are twice as likely to be sleep deprived. Even if a media device was not actively used at bedtime, even then its presence in the individual's sleeping environment was connected to poor sleep.

Children under the age of 13 require between 11 and 14 hours of sleep per night. Sleep is important for children's growth, cardiovascular health, and even academic success. These vital traits can be compromised if kids don't get enough sleep. Sleeplessness is a burning issue among the young generation.

**Affects Learning Behavior:** Kids are continually using technology for fun and learning. Few students can imagine finishing their work without Google baba, YouTube, and other internet tutorials. They can find out practically anything with a single click. It does a lot to help students learn, but is it worth it?

This has several flaws. Despite the abundance of useful and precise information on the Internet, there are many fake websites. Anyone with internet access can upload content. A child may not be able to tell the difference between reality and fiction. As a result, kids may learn inaccurate information, affecting their capacity to study.

**Danger from Perverse Attitudes:** Social media has been a terrific tool for connecting people and communicating. Your youngster will be able to keep up with school events and make new friends from different schools. But this can backfire. Children are too young to evaluate characters objectively. They can be deceived on social media by someone with malicious motivations. They are plentiful. They may arrange personal contact with your children and hurt them.

**Physical Growth Hampered:** Doctors say technology is harming children's health. Nowadays kids are so involved in their gadgets that they've forgotten the delights of outdoor play. Sadly, their computer dependency has resulted in couch potatoes, weight gain, and a host of serious health issues. Their time in front of a screen raises their risk of heart disease, cataracts, and other vision-related issues, as well as affects their cognitive ability. Immersion in technology increases as one moves away from reality.

**Getting to Know Unsuitable Material:** Nowadays kids are exposed to using current tools, a lot of things; not all of which are good. And the more they learn, the more harmful information they acquire. Social media today has no boundaries. Minors can find violent movies, drug addict images, and crime reports on the internet. All of this could negatively affect your child as they grow up. Many things on social media are also out of reach. Young folks aspire to look like and live like celebrities. A child's reality is warped.

**Mood Swings and Irritation:** Constantly using technology can disrupt children's sleep cycles. They are so addicted to technology that they cannot stop utilizing it. They can't sleep even if they try. They start staying up late, which is detrimental to their sleep and health. Limit your child's use of electronics. Insist them not to bring electronics to bed. Excessive use of technology causes mood swings, irritation, and rebellious behaviors in kids.

**Privacy Threats in Cyber Space:** I hope you remember the Blue-Whale video game, which trapped many students to commit suicide. Teenagers and kids grew up in a technological world; therefore privacy is strange to them. Despite its importance, cyber security isn't always ideal. Criminals and hackers can use technology to target youngsters. Technology has increased thievery, privacy difficulties, and harassment. The IT industry is in need of cyber security experts who can assist make technology safer for kids.

**Depression Risk:** Techno-addict teens and kids are more prone to report mental health difficulties. Depression is a major concern linked to media use. This has raised the number of young people needing mental health services including medication and counseling. Experts say too much time on social media or technology can lead to anxiety and depression.

## Conclusion

Online education has become the new normal. It's impossible to take devices from your kids but. Distance learning, in particular, necessitates the use of technology, but parents should limit their children's screen time, keep track of the websites they visit, and make sure they are ingesting educational content. It's critical to be aware of your children's daily technological habits. Not more than one hour of screen use each day for children ages two to five. Technology use should be limited on a regular basis for children between the ages of 5 and 18, according to the American Academy of Pediatrics (AAP).

It is sure that your child doesn't abuse technology. But, you have complete control over how much screen time and other activities your child is allowed to engage in. As long as you're working and taking care of your kids, it's fine if they're spending more time on the computer than usual because they're home from school. Observe their work habits, health, and general demeanor. Your children will grow up in a digital world. The negative effects of technology on children can be mitigated by the development of good habits. Excessive use of anything is called Misuse; we need to teach our children the difference between right and wrong. We need to channel our kid's energy creatively.

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