THE EXCITING WORLD OF EDTECH

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Imagine you are in a Std-VI classroom in the local school of Basuhar, 20km south of Patna, the state capital of Bihar, and you are orally explaining the reign of Emperor Ashoka. With chalk, board, some paper maps and the teacher, the students may or may not be interested in knowing more about that era, the dates and that society. Incidentally, that very place, Pataliputra or Patna, was the capital of Ashoka's Mauryan Empire.

Now Imagine a tech-enabled scenario in which the kids:

Mauryans in the Metaverse

1. Watch the history of their place as an animated video or an artificial intelligence-based re-creation.
2. Do a simulated role-play.
3. Play a gamified Mauryan Empire scenario as in computer games like Age of Empires.
4. Observe the Mauryan society and experience it by being a part of that in the metaverse.
5. Take a test about their knowledge of the Mauryan Empire as they take a virtual boat to cross the River Ganga.
6. Grab the historical points and discuss how South East Asia's history would have changed had Ashoka's brother Susima been alive to become the King.

Cutting-edge technology applications in school education could make these exciting prospects possible. A feeble glimpse of this was experienced by many during the COVID-19 pandemic.

Pandemic and the Pedagogy

The COVID-19 pandemic brought innumerable pain to humankind. It caused enormous human loss, made weaker people more vulnerable, disturbed society's rhythm, changed our lifestyles, and changed our behaviour and habit systems. One area in which it had a profound impact is children's education.

Schools and teachers scrambled around to find an alternative to the disturbed physical classes, and the academic community was forced to quickly transition from a physical mode to an online method for teaching and learning. It also had the problem of inclusion, and several projects were attempting to bridge the digital divide. Boston Consulting Group piloted an inclusive digital learning programme with NitiAayog using platforms like YouTube and WhatsApp and through basic and smartphones, targeting 4.3 million households in Rajasthan, Jharkhand and Madhya Pradesh. BCG also engaged the teachers and the parents.

Though there were green shoots of growth in educational technology, COVID-19 created a more significant thrust for the adoption in large numbers. It had its pros and cons.

The Evolution

Is Educational Technology new to humanity? Not necessarily. It has evolved from time immemorial. Human endeavour has always focused on improving the learning process using new techniques and tools. From an oral tradition of imparting education, moving towards scripts, clay tablets, palm leaves, and paper were some of the early steps in this direction.

Later, tools like the abacus, with slideable beads, were invented to do calculations faster. Libraries came in as public places for resource sharing. The libraries of ancient Nalanda University

(500-1200CE) and Alexandria are historically significant. Then came astronomy study aids like the astrolabes. Alphabetical inscriptions like Abecedaria were also used in Europe. Slate, Chalk and Blackboard became standard accessories in schools.

Mass printing of books came after the invention of the printing press by Johannes Gutenberg, an epochal event in the history of education. The next big hop was digital, but the adoption rate was slower. That changed after the COVID-19 pandemic, and it became the talk of the town.

The EdTech giant leap

Today, educational technology, called EdTech, combines learning theories with necessary information technology and telecom hardware and software to make learning more effective, interesting, engaging and thought-provoking. There is a vibrant ecosystem of startups, big corporations, academia, individuals and governments that are involved in making learning accessible and enriching to all sections of society.

Various techniques are deployed by the EdTech players to bring vibrancy to learning. Such techniques include:

1. Animation
2. Gamification
3. Student-friendly narration
4. User-centred design
5. Easy cross-references

It is not just about the gadgets or the fanciful presentation but the meticulously curated content at the heart of EdTech. Technology is an enabler.
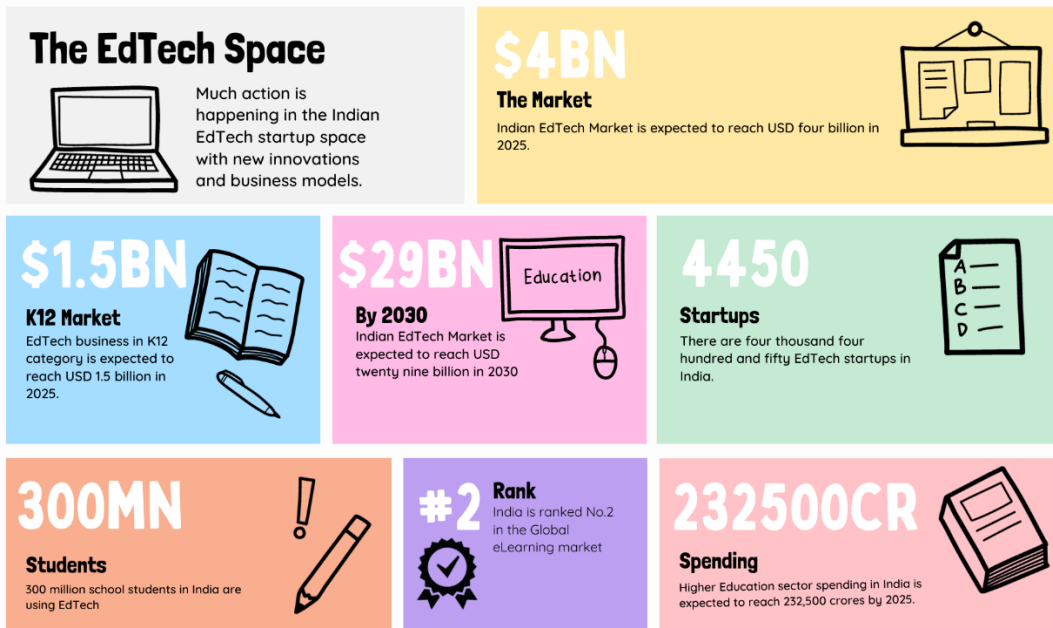
Some interventions are brought in to bridge the digital divide by providing free access (like the Khan Academy, Ted-Ed, and Scratch), and some design interventions try to widen the learning possibilities through technology at a price. Though meant for college-level courses, even school children enrol and complete online courses on platforms like Coursera and edX.

The lull after the pandemic

Once the pandemic shocks were over, life slowly resumed in the physical classrooms, and the usage of online mode was reduced. Learning action again shifted to the physical campuses of schools, colleges and Universities, and hybrid classrooms also started coming up. Though the physical classrooms are back in vogue, all the stakeholders have understood the potential of edtech. This experience opens possibilities for futuristic developments with flipped classrooms and blended learning.

Interesting developments - the business side

According to the India Brand Equity Foundation, the Indian edtech market is expected to reach USD 4 billion by 2025. In that, USD 1.5 billion will be accounted for by edtech in the K12 category. An INC42Plus report states that the edtech market in India will reach USD 29 billion in 2030. The National Education Policy 2020 also provides an enabling framework for broader educational technology implementation. Several startup brands are trying their mettle in this space - Byjus, Unacademy, Doubtnut, Vedantu, UpGrad, Lido, Embibe, Toppr, Classplus, Practically and Teachmint, to name a few.

The EdTech Space
Much action is happening in the Indian EdTech startup space with new innovations and business models.

$4BN
The Market
Indian EdTech Market is expected to reach USD four billion in 2025.

$1.5BN
K12 Market
EdTech business in K12 category is expected to reach USD 1.5 billion in 2025.

$29BN
By 2030
Indian EdTech Market is expected to reach USD twenty nine billion in 2030.

4450
Startups
There are four thousand four hundred and fifty EdTech startups in India.

300MN
Students
300 million school students in India are using EdTech

#2 Rank
India is ranked No.2 in the Global eLearning market

232500CR
Spending
Higher Education sector spending in India is expected to reach 232,500 crores by 2025.

Data Source: Research and Markets/IBEF/ INC42plus

The hyper-competition also sometimes leads to puffery and exaggerated claims in advertising. To reign in the advertisers, the Advertising Standards Council of India (ASCI) initiated a framework for responsible advertising.

Interesting developments - the social side

Extensive development work at multiple levels is happening in edtech with inclusive solutions. LitLab, an early reading platform, enable users to create decodables using AI. Kalvi40 is a laudable edtech initiative that takes free educational content (4500+ customised videos) through mobile applications to Government schools in Tamilnadu and Puducherry in India. Similarly, eVidyaloka is a Bengaluru-based social organisation involved in setting up digital classrooms with volunteer virtual teachers in rural areas.

Digital Empowerment Foundation is another organisation working towards digital literacy and citizenship in rural areas. NanhiKali is a project to help the education of underprivileged girls in India. One significant edtech aspect of this project is an AI-powered software called Mindspark, an adaptive learning platform loaded to tablet computers for a better learning experience for the girls.

Darkside of the tech arena

Edtech brings innumerable learning benefits to children; hence, there is growing acceptance among the parents and teaching community.

There are issues of:

1. Privacy
2. Cyberbullying and content that isn't appropriate for the kids' age
3. Threat of stealing children's online identity
4. Gadget addiction
5. Reduction in human-to-human interaction in the formative years
6. Bias infused by the algorithms
7. Persuasion architecture with commercial interests
8. Health-related issues

Health concerns

There are a lot of health concerns about the screen time children spend. Screens are all over - people move from large television screens to gaming consoles to laptop screens to tab screens to smartphone screens while signing off the day in bed. Several research studies have suggested that long-term exposure to excessive screen time will negatively impact children's learning and general well-being. Prolonged use of VR headsets might result in health issues like headaches and dizziness. While edtech offers tremendous learning benefits, looking into the health aspects is imperative.

SCREEN FATIGUE & HEALTH HAZARDS

Undoubtedly, the confluence of artificial intelligence, wearables, the internet of things, 5G /6G, metaverse, and augmented reality in educational technology will transform students' learning experience with incredible momentum. GenerativeAI will become as ubiquitous as calculators, an indispensable assistive tool. The academic community must find ways to plug this into their learning process.

We must also address the health and cyber issues while riding on this wave. Kids will need help in manoeuvring through the minefields of this treasure island. Policy-makers should also engage with all the stakeholders and develop measures to safeguard the children from the potential negative impacts.

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