NORMALIZING DIGITAL EDUCATION

Through the Learner's Lens

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Abstract

The ongoing efforts to flatten the curve of opaque, non-standardized, non-democratized educational paradigms, were hit by an exigency to flatten another curve. The immediate impact was the closure of every school in 188 nations since April 2020 that completely disoriented open access programs and disrupted demand and supply ratios at the educational front[1]. Approximately 1.6 billion students and 60 million teachers were left in the lurch by the aftermath of the global medical crisis[2,3]. Industries like retail, finance, and manufacturing focused on resuming business by adopting virtual workarounds. However for the education industry, the concept of "digital learning" was still in the shadows. Nevertheless, with no end in sight of the COVID-19 pandemic, digital meeting options started off as the temporary classroom and have now gone onto become the mainstay. This rude awakening to adopt digital options has now led to accelerated understanding and ability to offer suitable and most importantly, sentient options.

In the era of smartphones and the internet, the scope for growth and development of the digital learning industry is immense. Many assert that digital learning is an evolution of the traditional education model, which was already losing its relevance[4]. The pandemic-driven shift hints at the enormous scope of rethinking educational strategies and promoting academia in the new hybrid model of life.

1. https://data.unicef.org/topic/education/covid-19/
2. https://data.unicef.org/covid-19-and-children/
3. https://www.washingtonpost.com/education/2020/03/26/nearly-14-billion-children-around-globe-are-out-school-heres-what-countries-are-doing-keep- kids-learning-during-pandemic/
4. https://www.weforum.org/agenda/2020/04/our-education-system-is-losing-relevance-heres-how-to-update-it/?utm_source=sfm-c&utm_medium=email&utm _campaign=2716680_Agenda_weekly-17April2020&utm_term=&emailType=Newsletter

Abstract

As technology spreads its wings to the education sector, the typical classroom – once characterized by hour-long rote learning sessions, one-way communication, rigid schedules, passive listening, and generalized syllabi – is being transformed. The learning experience is becoming more exciting, inspiring, individual-driven, and digital.

Digital learning can automate teachers' functions, boost peer collaboration, enable module customization, help track progress, and best-prepare students for the future. Digital learning also plays a pivotal role in improving digital literacy. Students develop the necessary skills to navigate through information and opportunities available online at an early stage. Educators also hint that digital learning yields significant benefits in students' achievements, retention capabilities, and overall performance.

However, unplanned implementation of online learning without proper training, bandwidth, and preparation can result in a user experience unconducive to sustained growth. Among several other factors, digital learning requires access to reliable internet and technology.For example, 95% of students in countries like Switzerland, Norway, and Austria have access to a computer5. This number comes down to only 34% in Indonesia.

As efforts are being made to cross these hurdles, digital learning is poised to enable many benefits across the education spectrum.

5: http://www.oecd.org/pisa/

A 360-degree curriculum: There are no back-benches here

Digital learning enablers must be capable of observing and listening, picking up behavioral and social cues, attending to individual needs, and offering handheld support and administrative intervention to cater to the needs of a distributed and diverse user base of students. While the common perception is that such capabilities are only conceivable in a physical setup of surveillance and proactive acknowledgment, in reality, digital classrooms are better equipped to carve out each learner's journey while mending the cracks in traditional educational practices.

When educational institutes implement digital strategies for academia through the learner's lens – and not as a knee-jerk reaction to social distancing – they build a curriculum where no student is left out, be it a pre-school, high school, or professional course.

Educational institutions have already been adopting digital paradigms over the years. In the initial phase, many schools introduced computer labs as an additional 'facility.' Later, many institutions started using technology for support in the form of projectors, desktops, hybrid

infrastructures, and limited online libraries. In the cloud-native era, education shifted towards modular platforms like web and mobile with more elasticity in infrastructure, agile models, online training and debates, and human-machine interactionslike biofeedback. The shifts continued, and the most recent phase is driven by platforms for education that leverage online assessments/role-playing, WebQuests, secure VPN protocols, and AR/VR classrooms. That said, different institutions progress from one phase to the next at different paces, and they can be anywhere in their journeyof transformation. It is, however, essential to have a vision of what's next. Digital learning enablers must answer how technology will further transform learning in each of these phases.

PRE CLOUD ERA

- Desktop Driven
- Client Server/Web
- Enterprise Software
- Hybrid Model
- Hybrid Infrastructure
- Pre-Cloud Skillsets

CLOUD NATIVE ERA

- Web & Mobile Driven
- Service Oriented
- Modular Platforms
- Agile Model
- Elastic Infrastructure
- Human + Machine

APPS & PLATFORM ERA

- Mobile & Smart Products
- Ecosystem Oriented
- Business Platforms
- Hyper Productivity
- Elastic & Edge Infra
- Human + Gig + Machine

WHAT NEXT?

- Sentience
- AI-first Processes

The end goal is to build digital learning platforms that help develop consciousness and social responsibility by incorporating student's 14 basic needs across the process[6]. These include developing skills like 'how' to learn, getting chances to practice, and finding creative spaces & tools for self-expression. Let's take a look at what it takes to design and develop such platforms.

6: https://www.teachthought.com/learning/14-things-every-student-needs/
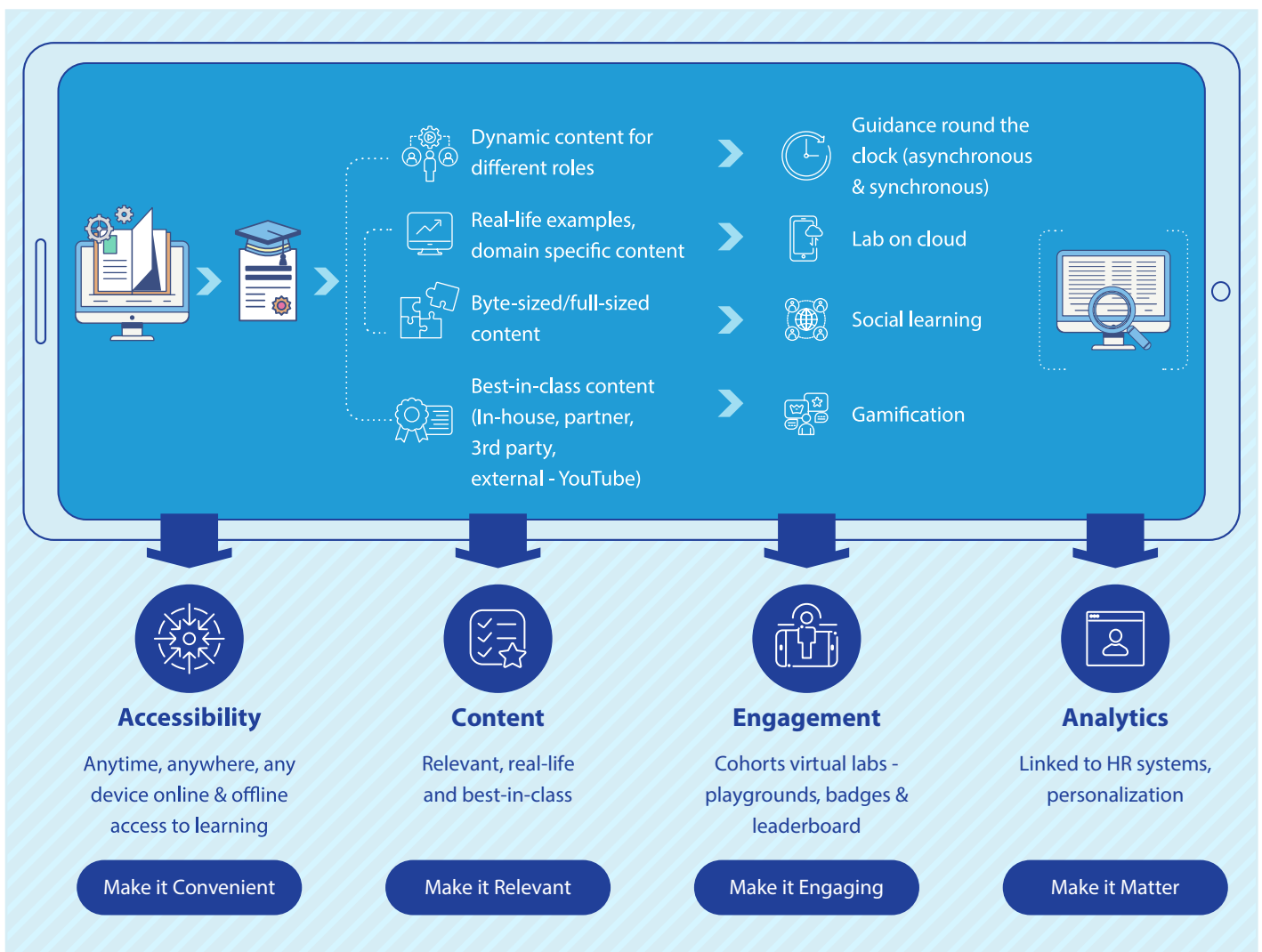
Building the right platform – core tenets

Digital learning expands conventional teaching methods of textbooks, workbooks, written tests, and recitation to audios, videos, multimedia slides, courseware, gamified modules, and a combination of virtual and physical worlds. It can leverage AI to conduct skill-gap tests and Needs Analysis (NA) to understand the learner's objective and driving force. It can shift the teacher's role from a "sage on the stage" to a "guide on the side" and gauge attitudes with open-ended questions and scenario-based MCQs. But most importantly, it can help build sentience, i.e., a multi-dimensional, humane method of developing consciousness.

Sentience can help bring down non-democratic education barriers while ensuring that the students are nudged towards a responsible learning projectile.

> **"Teachers need to integrate technology seamlessly into the curriculum instead of viewing it as an add-on, an afterthought, or an event."**
>
> - Heidi-Hayes Jacobs, acclaimed author and education leader

Schools, universities, and executive learning programs must focus on building digital platforms that endow enriched experiences and create an atmosphere of curiosity. For that, the fundamental building blocks of a live enterprise school should be taken into account to ensure that the platform successfully imparts knowledge and supports a learner's journey.These include accessibility, content, engagement, and analytics, as explained below.

Dynamic content for different roles

Real-life examples, domain specific content

Byte-sized/full-sized content

Best-in-class content (In-house, partner, 3rd party, external - YouTube)

Guidance round the clock (asynchronous & synchronous)

Lab on cloud

Social learning

Gamification

Accessibility
Anytime, anywhere, any device online & offline access to learning
Make it Convenient

Content
Relevant, real-life and best-in-class
Make it Relevant

Engagement
Cohorts virtual labs - playgrounds, badges & leaderboard
Make it Engaging

Analytics
Linked to HR systems, personalization
Make it Matter

The evolution of learning needs

Be it at any age or time, learners want to be aware of their capabilities, engage in constructive modeling with actionable feedback, turn-and-talk with peers for self-mentoring, and have a purposeof learning. Learners of the 21st century, however, also demand omnichannel experiences from pedagogy. It means they should be able to go through a syllabus, tables, or research papers on the device of their choice, even while waiting for a bus! Secondly, they are hoppers who need information at their fingertips. However, this engagement needs to evolve and modulate in magnitude as learners progress along the curve.

There are three learning stages – from kindergarten to high school (K-12), college and university years, and professional learning duringexecutive years. Physical interactions and cognitive build-up have a descending gradient as we move from K-12 to executive learning. Aspects like peer-to-peer collaboration, group assignments, assessment timelines, administrative involvement, and class lengths also differ in all three. Nevertheless, digital learning can drive engagement and foster inspiration across all three phases by aligning the learning models to the specific needs.When implemented with a physical setup in the right mixture, it can offer exciting online activities that boost in-class communication, promote curiosity with digital aids, and acutely detect instances where

handholding is necessary to teach social skills in K-12 groups. It can offer university students updated curriculums, live interactions with experts, and the ability to preview tomorrow's qualifications to match pace with the rapidly evolving industries.For executives who aim to adapt to the industry changes in real-time, digital programs create a platform to predict and prepare for industrial needs through collated agile courses that don't follow a cookie-cutter approach.

Let's further examine how digital is driving differentiation across the three learner phases.

1. Building a foundation of creative learning: K - 12

Clive Shepherd, who specializes in e-learning, blended learning, and business communications, states that "classic, instructional learning doesn't close performance gaps but only ticks compliance boxes." Today, learning systems need to shift from publishing to engaging and challenging students at individual and group levels. Studies suggest that around 75% of fifth- to eighth-grade students are not proficient in 21st-century technological skills.

With digital learning, the curious and creative pupils of kindergarten to high school (K-12) can develop these skills, learn authorship rules, understand how to access online information, and learn social responsibility. With VR-powered laboratories and simulations, topics like anatomy and topography that are abstract and diagram-heavy can be easily imagined and understood. For example, a child living in tropical regions can experience life's essentials in the Arctic, tour a rocket launch or a museum, or even learn about water pollution. Teachers can bring in near-authentic experiences into their pedagogy for better engagement and recall. At the same time, students can enjoy such sessions, understand concepts with visual aids, and 'experience' - rather than 'sit through' - classes. The safe emulation of real, physical components is a bonus. These technologies have already been tested for effectiveness and inclusivity with highly positive results.

In these formative years, smart on-premise interactions fueled by digital technologies can transform existing classrooms, with teachers still occupying the central role in pedagogical learning. For instance, learner-first processes like AI-infused conversations and 3D visualization of diagrams can strengthen students' thinking and imaginative powers. Helping children think outside their typical learning modes can inspire creativity and build a sense of accomplishment.With technology-enhanced educational strategies like blended learning, algorithmic flipped learning, AI-based personalized learning, and cloud-enabled anytime-anywhere access, digital learning can enable teachers to amalgamate their experiential knowledge into a shared repository accessible to students viadigital tools. Additionally, they can engage with parents and other stakeholders using personalized dashboards and insights.By tutoring through video chats, dynamic grouping, workshops, and project-based learning, they can augment collaborative learning with customized sequences.

2. Building capabilities for today and tomorrow: Higher education

Students are more self-aware during the university years, demand independence in making choices, and explore educational realms on their terms.They want to understand different domains and start building specializations with the right skillsets for employment opportunities. It is the stage for grooming soft and hard skills with social learning and experimental growth. Furthermore, today's youth is tech-savvy, digitally-enabled, and socially-connected. Students seek self-learning opportunities with professors acting as guiding coaches or facilitators.

Paradoxically, higher education isalways playing catch up with 'employment-friendly' qualifications.If the speed of the digital transformation of universities is at 'x,' the industries transform at '10x' in the same period.By the time universities collate a curriculum around a qualification, it is surpassed by a new set of skills or advanced versions. This gap often results in a supply-demand mismatch for talent. As argued in the Harvard Business Review, the need for people trained in the next wave of skills is far greater than the need for state-of-the-art technology7. Digital learning is a smart way to close this gap

and future-proof the legacy of educational doctrines.

Universities can embrace learning platforms more holistically by working with the industry to bring in add-ons and make their pedagogy more relevant. Digital learning platforms can dynamically add employment-friendly courses to meet the rate of disruption in the industry successfully. It can help match pace with rapid innovation, enable applied research capabilities, allow part-time learning, and overcome the general fatigue in daily sessionsdue to the absence of interactions or real-time engagement. Moreover, digital learning platforms can offer networking and marketplace apps for collaborations and exchanges with cross-institutional or geographical cohort mechanisms.

Administration can cut costs by seamlessly integrating the required tools into the existing portals, and teachers can enjoy the full focus of students with adequate assessments. Apart from the guaranteed benefits of paperless education and simplified facility management, digital learning also facilitates crowdsourcing of industry experts for live streaming of sessions and co-create best-in-class virtual experiences. For the students,it gives rise to friendly competition and awareness of cumulative growth.With real-time inter-

activity, structured dashboards that show modular comparison, and effective tracking of progress, students can personalize recommendations to individual strengths and weaknesses and access intelligent collaborations. They can engage in live chats with educators and even leverage social media as an additional learning resource.

Digital learning can bridge

(i) The access gap with simple software upgrades

(ii) The understanding gap by personalizing modules specific to user learning goals and strengths

(iii) The culture gap by identifying patterns in the target audience and acting on them

It can re-architect rigid, predefined schedules into more flexible and exciting experiences that inculcate self-learning qualities. Such a decorum would instill enthusiasm and clarity in students who are about to embark on a new journey of salaried self-sustenance and encourage further studies with a clear vision of short-term goals and future milestones.

3. Imbibing dynamic resilience and adaptability

While university years are about being agile and keeping up with the rapid industrial digitization, the executive years are about driving that change. In this stage, self-learning takes precedence, driven by an urge to make one's mark in an ever-evolving industrial landscape.The competition is high, technology is readily available, demand is intense, time is crucial, attention is focused, and speed is unfathomable.

Before the COVID-19 pandemic, there was a sharp rise in pessimism about growth and a clear correlation between upskilling and the organization's confidence level8.Data shows that the demand for digital skills is further expanding9. With a radical and lasting change in work trends in the past few months, including shifts in the required critical skills, employees are threatened by obsoletion. Learning and development have extended beyond

reskilling. 41% of CEOs believe that upskilling programs that develop a mix of soft, technical, and digital skills are "very effective" in creating a more robust and engaging corporate culture10. 77% of the 22,000 people recently surveyed by PwC said they would be willing to upskill to become more employable.

What should be the plan for the post-pandemic age?

In the ever-evolving industry landscape already bloated with Robotic Process Automation (RPA), where executive motivation can range from bite-sized micro-learning to degrees, digital becomes the most-suited, flexible, accessible, and obligatory medium of education in this phase. By offering agile models like just-in-time learning, with an emphasis on self-learning and micro-sized learning, it supplements professionals with the much-needed continuous learning process. It also provides a direct mapping of learning paths with market opportunities,the ability to share student dossiers/

credentials, seamless on-demand access to libraries, andfluid movement in and out of sessions, with access to recordings of missedsessions anytime.

Additionally, digital learning can also benefit executives via the now-popular Massive Open Online Course (MOOC) model and mobile-learning approaches. Students can download and record webinars with industry veterans in different formats and discuss the subject matter through questionnaires and group reviews. Furthermore, digital can provide learners with a platform to collaborate and network with peers and industry experts. By catering to multi-geographic, cross-domain students of varying age groups, skill sets, and regional expertise, it builds a unique atmosphere of learning, exploring, and – above all – climbing up the ladder of professional success. It can birth partnerships, collaborations, research, and innovation in any and every field.

8: https://www.pwc.com/gx/en/ceo-agenda/ceosurvey/2020.html

9: https://www.gartner.com/smarterwithgartner/lack-of-skills-threatens-digital-transformation/

10: https://www.pwc.com/gx/en/ceo-survey/2020/trends/pwc-talent-trends-2020.pdf

Conclusion

"Education is not preparation for life; education is life itself." — John Dewey

The world at large and humans in particular have been grappling to decode the happenings of the past few months. The social curbs limited the core of everything that is natively human. But science was at work to help overcome this unprecedented medical phenomenon and try to get life back to familiar scenarios. The core continues to be about humans relearning to adapt to this normal.

As digital initiatives become digital imperatives, the social mandate to rethink learning models is reaching a crescendo. It is imperative to transform and adapt to technology-enabled digital learning workflows that define tomorrow's education industry experiences, while retaining in letter and spirit the human ways.

The world as we knew it has ceased and lifelong learning in the new world order will thrive in an agile and sentient ecosystem.

The Author

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Tan is an accomplished business leader with over 3 decades of experience in global IT services industry and expertise in multiple corporate functions such as strategy, operations, education, talent development and technology implementation.

Currently, Tan heads the U.S. Delivery Operations and Education, Training and Development at Infosys. An Infoscion sincethe last 20 years, he has served in the capacity of Head of Application Management and Development and as Group Head of HRat Infosys.

Tan also co-leads a working group for the UN Department of Social and Economic Affairs (UNDESA), titled "Develop Industry Sector Specific Sustainability Impact Metrics".

Tan is passionate about giving back to the society and has been actively partaking in youth and education related voluntary activities.He is an advisory member of multiple not-for-profit organizations, Infosys Foundation USA and Youth for Seva, among others.

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