

INSIGHT
0620-003

FUTURE OF HIGHER EDUCATION

NINE MEGA TRENDS

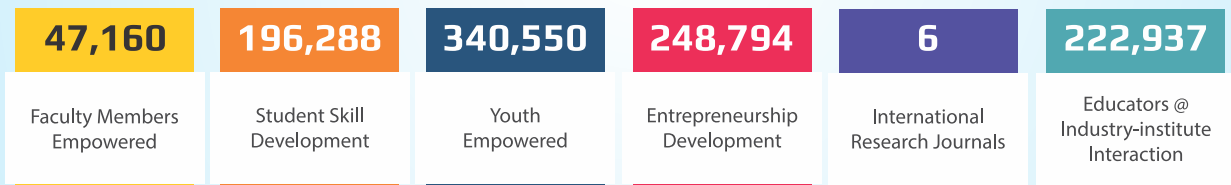


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INSIGHT
0620-003

**FUTURE OF
HIGHER EDUCATION**

NINE MEGA TRENDS

ISBN No. 978-81-937760-3-2

ICT ACADEMY is an initiative of the Government of India in collaboration with the state Governments and Industries. ICT Academy is a not-for-profit society, the first of its kind pioneer venture under the Public-Private-Partnership (PPP) model that endeavors to train the higher education teachers and students thereby exercises on developing the next generation teachers and industry ready students.

With training of teachers and students as the primary objective, ICT Academy has been working through a seven pillar program in the areas of Faculty Development, Student Skill Development, Entrepreneurship Development, Youth Empowerment, Industry-Institute Interaction, Digital Empowerment and Research & Publications. ICT Academy is recommended by NITI Aayog, the National Planning body of Government of India as one of the unique organization for dissemination and replication, which is aligned to the Skill India Vision of the Government of India. Visit www.ictacademy.in for more details about the organization.

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This book is written in American English. Therefore, the grammar, spelling, and punctuation follow that format.

The grammar, spelling and punctuation follow the AP Stylebook.

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Published by M Sivakumar on behalf of **ICT Academy**



This publication is released by

Shri M Venkaiah Naidu

Honorable Vice President of India

at Upa-Rashtrapati Bhavan, New Delhi through the Virtual Book Launch Function held on 30 Jun 2020

Guests of Honour:

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Shri CA T N Manoharan, Chairman, Canara Bank

Shri CA V Pattabhi Ram, Author

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Session Host:

Dr B Anbuthambi, President, ICT Academy

Participants:

Around 5000 Educators, Academic Leaders, Policy Makers & Corporate Professionals.

FIRST WORD

THE CHALLENGES of today's increasingly 'contactless' world places several burdens on schoolteachers and college professors. Learning and education are getting reshaped courtesy technology, as well as the changing global scenario. It has now become imperative for educators to reinvent themselves for a 24x7 learning world.

The site, *teachingthought.com*, is dedicated to 'growing teachers,' and has several new ideas for continuous professional development for educators, appropriate to the new world order. Students must adjust to the new learning environment, that has more self-learning, more peer-to-peer learning, and more deep thinking. The professors, too, have to reinvent, primarily in the area of inspiring students to improve critical thinking ability and to embrace the new ways of learning, teaching and collaborating.

The demands on teachers during this transition period will be high. It is, in many ways, a paradigm of learning from anywhere, anytime, and from a preferred teacher.' In higher education, the challenge will be more significant. Different students will be at different levels, taking exams and tests at different points in time, affording faster progress to becoming better-equipped students. Being fair and equitable to all the students in a class who come from different learning environments and platforms, different bandwidth capacities, and devices will be unique learning for the teachers.

ICT Academy has been in touch with hundreds of professors and leaders in the higher education industry, all of whom are working with great enthusiasm to stay ahead in this new ecosystem. Hundreds of these leading educators have contributed to crystallizing the megatrends in higher education, compiled in this book.

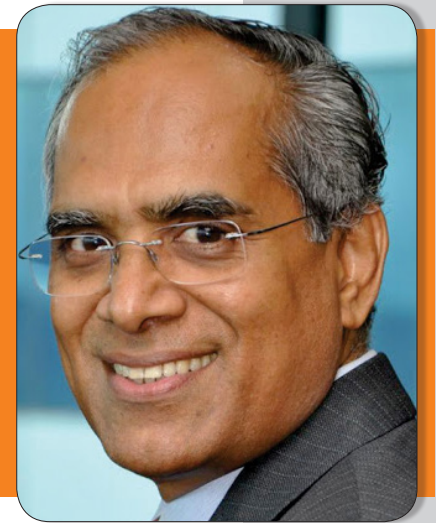
We believe this to be a starting point in reimagining higher education, reinventing the teachers, and re-energizing the students to be the builders of the new world order. This new world will be filled with opportunities and learning, sustainable development, and a research-oriented talent pool that will take us all to the leading edge of our potential.

Just as I write this, on a Sunday afternoon in June, I am in the inaugural session of IIT Madras and NASSCOM's Digital Skills Academy program's virtual launch. A program titled CB2W - Career Back to Women, which is focussed on training women to get back to the IT industry after a hiatus from work propelled by life stage priorities. There are over a hundred women who have signed up and will be the new ambassadors of "Back to Work" riding the megatrends in learning.

ICT Academy and other institutions are preparing for this new, reshaped future, and the "Mega Trends" will serve as the Academy's path.

LAKSHMI NARAYANAN

Chairman, ICT Academy





It gives me immense pleasure that ICT Academy is bringing out a book on “The Future of Higher Education – Nine Mega Trends”. The insight into the nine mega trends in three different segments of Learning, Resources and Outcome are right mix of research, outcome and suggestions to move forward in establishing standard of our higher education which are truly world-class.

The explosion of information and advancement in digital technology is transforming the quality and access of higher education at greater pace and scale. New frontier technologies like Machine Learning, Artificial Intelligence, Internet of Things, Cognitive Systems are emerging and students are increasingly guiding their own learning, with the teacher providing mentorship and context along the way. Current generation of students are the first to have grown up with the internet, and the first to be educated by it. This is an uncharted territory for both the learners and educators. This publication provides with the right insight for the students and teachers to perform and deliver in the future world of education.

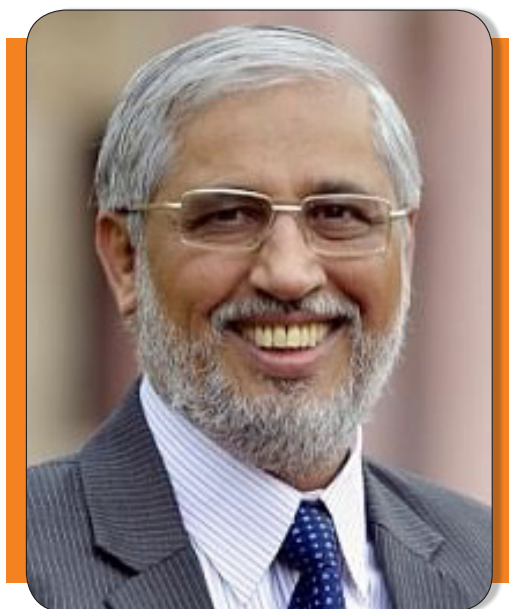
I extend my best wishes to the author, research team and the ICT Academy who were instrumental in the publication and hope that endeavours like this will surely equip the learner and educator to stay ahead in this new ecosystem.

PROF. D. P. SINGH

Chairman, University Grants Commission

New Delhi

24th June, 2020



I am excited to know that, ICT Academy is bringing out a Publication on, 'The Future of Higher Education – Nine Mega Trends'.

Great revolutions happen when problems arise. Human kind takes a leap forward whenever it faces a crisis. During the world wars, the world faced a huge economic crisis after which industrial revolution started in which women played a key role in economic development. After that they never looked back.

Similarly, during the Y2K problem, the Indian engineers gained major advantage in providing the right solutions to the problem. Also, the world conglomerates Apple, Alphabet, IBM, Microsoft and Adobe etc. are headed by Indian engineers.

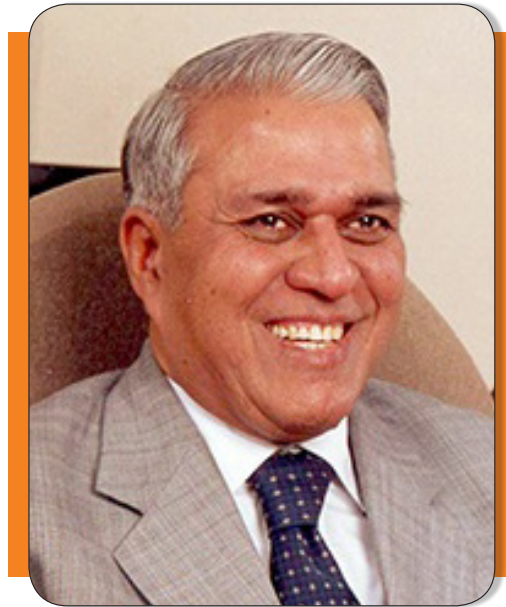
Right now, the pandemic has created new ways of doing things. Especially, in education this is creating a great transformation. From primary to higher education, there is a shift in learning patterns. The children's gaming device has now evolved into an educational equipment. Also, instructor led classroom learning mode is shifted to self-learning model.

It has not stopped here, much more innovations and experimentations happen as we move ahead. It's how we respond to every situation, decide our destiny. I hope even after this pandemic, our nation has the potential to evolve as an emerging force in the new world order.

I congratulate all contributors, authors and editors of this Publication and am very optimistic that their efforts will be well received by the education fraternity.

Prof. ANIL D. SAHASRABUDHE

Chairman, All India Council For Technical Education



I am so happy to learn that ICT Academy is planning to bring out a Thought Leadership Publication titled “The Future of Higher Education – Nine Mega Trends”.

The Academy has identified these Nine Mega Trends after inputs from a galaxy of intellectuals. These Mega Trends have been selected very meticulously and the compilation of insights is superb. I am sure publication will be of immense use to all connected with Higher Education.

Incidentally, these Trends, even relevant otherwise, have assumed much greater importance during this COVID-19 Period and the following years. We are sure to see many paradigm shifts in Higher Education in very near future and this Publication, I believe will facilitate the changes.

I complement all contributors, authors and editors of this Publication and am very optimistic that their efforts will be well received and hence will be a great satisfaction to them.

I congratulate Mr Lakshmi Narayanan, Chairman of the Academy and all his colleagues for a great initiative. My very best wishes !!

Prof. K K AGGARWAL

Chairman, NBA



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IN A NUTSHELL

V Pattabhi Ram

is a chartered accountant and an author



MANKIND is moving towards a machine economy. To survive in the new world of chaos, educational institutions must go digital. Alumni might fund the initiative.

The dramatic explosion of information makes self-learning an important skill. With no one willing to completely sacrifice face-to-face class, blended learning is the new mantra. The relationship between the teacher and student moves away from that of a guru-shishya to that of senior-junior friends.

Resources such as laboratory and library will be available in cyberspace. Meetings and seminars will predominantly go online. All this will call for both innovation and investment.

Examinations will go completely online: write anywhere, anytime, whenever you are ready. Hirers will look for skill sets. Certifications are only a filter.

The complex nature of the world means that a student would need a mentor from the industry. Job providers will look for those who have the skill of learning to learn. There will be more freelancers than job-hunters.

Inside this capsule lie the nine mantras.

Welcome to the universe of CHAOS.



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ACROSS 23 STATES



SURVEY ON NINE MEGA TRENDS

India locked itself down between 24th March 2020 and 31st May 2020 due to Covid 19 Pandemic. During this time, ICT Academy launched “SkyCampus” a digital online initiative to support academic institutions across India. Under SkyCampus, ICT Academy organized 37 webinars. It attracted a cumulative strength of 171,729 participants, who came from 667 institutions. They included educators from academic institutions and employees from corporate India. ICT Academy administered a 20-question survey on a random sample of 10,100 people on the topic ‘Education Trends.’ 5861 of them cutting across 23 states and UTs responded. Their insights are captured in our data boxes.



CURTAIN RAISER

PEEPING AHEAD

SOMETIME in the 2030s...

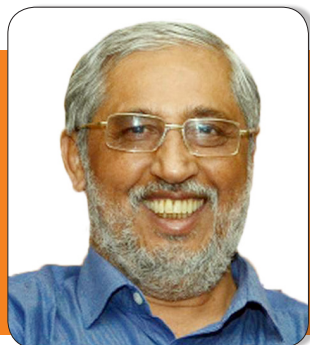
If you were born in the decade that began in 2010, the way you gain knowledge, get tested, and land in jobs are very different from how earlier generations learned, got tested, and landed in positions.

At college, 25 percent of the courses that you pick are self-taught. Yes, you have to learn them by yourself. You choose these either because you are passionate about them or believe those skills will be hot in the job market two years later. You have access to curated video lessons, besides thousands of unverified content on the World Wide Web. There are professors available to help you in making choices.

Seventy-five percent of the courses have blended learning. That is, you attend a face-to-face class for instructor-lead learning like the earlier generations did. However, you must read a significant part, say 40 percent, of each such course in advance at home, and come to class prepared. Questions are thrown around, students answer, and then the teacher provides perspective. It's a clever mix of 20th-century classroom and 21st-century self-learning.

There are several online laboratories to provide practical insight. This is irrespective of whether you are majoring





We can overcome VUCA if we get the sequence and abbreviation right.

Replace 'Ambiguity' with the 'Attitude' for life-long learning. With 'Collaboration,' we can overcome 'Complexity.' Adopt 'Universal Values' and there will be no 'Uncertainty.' Together, attitude, collaboration and universal value will help evaporate 'Volatility' and lead us to 'Victory.'

Prof. Anil D. Sahasrabudhe
Chairman, AICTE



in physics or in international finance, in economics or in artificial intelligence, in medicine or in history. Gamification is the new mantra, as concepts are learned and experienced practically. There is an entire cottage industry that has grown around gamification. Webcasts, webinars, and web-conferences are a few channels for picking knowledge even as global professors, housed in different geographies, teach at their convenience. There are enough and more materials on the Internet in the form of texts, images, audios, and videos for students to pick. All they need is an eye!

The teacher is no longer the veritable storehouse of knowledge, having moved on to be a facilitator. The administration process is automated so wholesomely that one begins to wonder if George Orwell missed his 1984-date only by a few years. You are tracked by the college every day from the time you download an application to the time you graduate and, maybe, even till later!

You take exams when you are ready. These tests are center-less, where candidates sit online, anytime, anywhere in the world. These are not manually proctored as cameras, voice recognition, and facial gestures play a role in ensuring that they don't cheat. Graduation usually is to be completed in four years. Some can finish it in three years if they are fast, and some in seven years if they want to take it slow. There is no societal pressure on this. Recruiters will look both at the candidates' score and his skills. The time taken by him to acquire them will be irrelevant. The students' experience with the administrators of the college, in campus and hostel, is seamless.

One day you and your friends will apply for a job if companies haven't already found you through your social media presence. All screening tests and interviews happen online. Campus placement of the 2010s variety is passé. In the workplace, you will hopefully identify a mentor, a guiding star that will be your sounding board for the next 10 years. You could also be a freelancer in the fast-growing gig economy, in which case you will scout for clients, again perhaps with a mentor.

All of this will happen in every part of the world, be it Asia or Africa, Europe or America, Australia or Antarctica, albeit with different degrees of sophistication. But before we get there, let's hasten to look at the unprecedented times we are in today that will act as triggers of change.

DISCERNIBLE DIRECTIONS: FROM 2020 TO 2030s

Let us now cut back to the present, 2020, to explore the drivers of change, and see how to walk the path to reach the university of tomorrow.

A little more than a hundred years after the end of the First World War, we are in the midst of another global battle. This time, it is an invisible enemy. The Novel Coronavirus (aka COVID-19) has sent the Earth's population of 7.8 billion people packing into a lockdown. The last time this happened was in 1917 when the Spanish Flu unleashed fear on an unsuspecting world. That was in the era before vaccines and antibiotics. The Flu killed three times more people than The War had. While mankind will win the ongoing battle, life will not be the same again.

It's remarkable how COVID-19 has triggered a simmering wave. Almost overnight, educational institutions have seamlessly transitioned into a new order. Humanity, despite being house-arrested, has stayed interconnected through the digital world. But going online is just the tip of the iceberg, although it proves that if push comes to shove, mankind will make the needed change.

Some 25 years ago, Tom Peters wrote about how various segments of a music band will be played in different parts of the world and be brought together and synthesized. That's the interconnected world of today, which co-works 24/7. And driving this world now, and well into the future, will be knowledge. It is, therefore, time to watch out for the megatrends in learning and development in an era where automation, artificial intelligence, and machine learning will strike it big.

Three important directions are discernible, as we step into the 2020s. These involve the growth of the digital model, the emergence of the machine economy, and the return of alumni. It is these that will take us to the 2030s and to the world where children born to millennials live.

The Digital Economy

Digitization is the new name of the game. Everything, including the restaurant menu and the corner shop, has gone on to the Internet. Learning styles are changing with the arrival of augmented reality and virtual reality, leaving universities with the Hobson's choice of moving online. At another level, like in the movies where style takes precedence over substance, universities may try to make the student experience more important than course content.

The big question is, will they also replicate the physical space in the digital world?



DRIVING FORCES

The digital economy, the machine economy, and the return of the alumni are the three driving forces of the universities of tomorrow. Without them, the institutions are sunk.

The Machine Economy

In 1959, Peter F Drucker wrote about the impending rise of the knowledge-worker; the superstars who apply knowledge, acquired through formal education, to develop products and services. In 2020, we stare at the terrifying possibility of the arrival of machine-as-the-worker; machines that would do jobs that the knowledge worker did. In such a scenario, what should universities do? Should universities work with industry to design curriculum, create content, and deliver candidates that match the needs of the workplace? Or should they focus on teaching machines?



The Return of the Alumni

Fifty percent of the global workforce may work from home. In this giant freelance economy, lifelong learning is a necessity and no longer a comfort or luxury. The alumni will come back to universities periodically to pick industry-relevant certifications, and if the brand is built right, this could be a crucial revenue driver for the university. The winning universities will come from those who make these courses affordable, flexible, and value-for-money. And managed well, the alumni might turn out to be your biggest benefactor.

Inside this broad framework of directions, we must identify how universities will perform and deliver value. Here are **NINE** megatrends in the Learning and Development space. ■



LEARNING

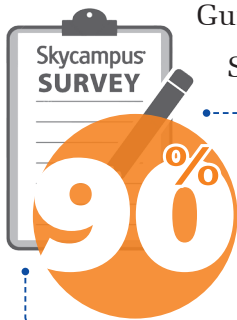
The student-teacher relationship will change irrevocably. So would the learning style. From *stand-up-and-deliver*, we will move to both self-learning and blended-learning. These are already in practice. The tsunami will be in respect of the extent these two will permeate universities.

‘GURU-SHISHYA’ relationship changes

Many centuries ago, the Shishya (disciple) worked full-time in the Guru’s (teacher’s) home. In later years, he began attending college where the teacher taught, and the pupil learned. Today, he is an information seeker picking knowledge from anyone, anywhere, and at anytime of the day. From a plain disciple to a knowledge seeker, the journey of the student has been phenomenal. The modern-day Guru wears many hats. He is not just a friend, philosopher, and guide, but is also a coach and mentor. Yes, the relationship of a teacher and a student has changed for the better.

PAST

If you were born in ancient India, then at eight years of age, you would have been packed off as a shishya to live at the Gurukula, the Guruji’s home. There you would carry out the day-to-day chores of the Guru’s family and be a part of the extended household.



Several shishyas dotted the Guru’s abode. They were considered equals irrespective of caste, and they all were allowed to learn at their pace. Based on the shishya’s abilities, the Guru would suggest what he must learn and designed tests that the shishya must clear before elevating him to the next

90% believe that a teacher’s role has shifted from a Sage on Stage to a Guide on Side.

level. This was individualized learning at its best. The teacher taught with the help of examples, and the disciple learned by hearing. The subjects were law and weaponry, and the classrooms were in the open and inside the forests.

Character building received the utmost importance. When the teacher was satisfied with the disciple's assimilation of knowledge, he was declared fit to leave the Gurukula, go into the outside world, and lead his individual life. A guru did not take any fees. At the end of his schooling, the shishya, as a gesture of gratitude, might offer the guru thanksgiving, either monetary or otherwise.

If you lived during 1000 BC, you set out for higher education to Taxila, in modern-day Pakistan. There you would, at your choice, learn literature, science, law, medicine, or even military. You saw teachers have complete autonomy in designing courses. The teachers were flexible with course duration. Yes, you would finish your course in three years, while your friends took four years or more. There was no fee as "knowledge was respected and would not be bartered for money!"

If you were born around the 5th century AD, you would have seen Nalanda blossoming in modern-day Bihar. The institution was very close to today's universities and had lecture halls and residential quarters. Education was open to all. The subjects included religion, sciences, arts, and medicines, which were taught in bigger rooms, and there were libraries. The teacher-student relationship was like between a father and son. Nalanda met its Waterloo in 1193 AD.

As India came under the Islamic invasion, Madrasas (higher education institutes) and Maktab (elementary schools) became prominent. Education was free, teachers were respected, and both ethics and spiritual values received importance. The self-study was encouraged, and teachers accepted emoluments. Higher education focused on manual skills and trade skills, where students specialized in their chosen field.

The motto of education was awareness, self-control, character development, and finally, treading the path of enlightenment. There was no syllabus,



The four timeless elements of a strong relationship are consistent communication, an emotionally safe learning space, mutual respect, trust and feedback, and finally true equity.

Focusing equally on all students will lead to a great student-teacher relationship. This can be achieved by a digital environment where a professor will teach a faceless audience, treat everyone equally, and provide them access to uniform facilities. Such an environment will have a mechanism driven by AI that forces the teacher to encourage every student to participate and collaborate. Later, they will come to the classroom to participate effectively so that the learning is high.

N Lakshmi Narayanan

Chairman, ICT Academy



no conventional examination, and no evaluation. Education was free, it was the responsibility of the state, and the administration was simple.

PRESENT

When Britain set its rule over India, its education system took root in the subcontinent, and English became the medium of instruction. Missionary schools grew in number even as more colleges and universities opened. Soon philanthropists and private players set up their institutions. These institutions offered new skills to traditional India.

Sometime in the 19th century, when the Industrial Revolution gained momentum, education began to resemble an industrial-age factory with mass production and one-size-fits-all teaching. Today's Age-based students, whole-class instruction, and standardization are remnants of the industrial revolution, and led public education into a "factory model."



Wrote Alvin Toffler, "The solution was an educational system that simulated this new world. The whole idea of assembling masses of students (raw material) to be processed by teachers (workers) in a centrally located school (factory) was a stroke of genius. The administrative hierarchy of education followed the model of modern bureaucracy. Children marched from place to place and sat in assigned stations. Bells rang to announce changes in time."

Today, in 21st century India, education is a big business. It's a far cry from the Gurukula days and is set to move away from Drucker's version. As things get set to change exponentially, the first casualty will be the teacher-student relationship.

FUTURE

The relationship between the teacher and student will not be of the traditional guru-shishya variety where the disciple worshipped the ground on which his Guru walked. Nor would it be one of great respect like what it is till now. We will see the teacher act as a facilitator. He will tell what he thinks is right for the learner. From there, to take it or leave, will be the student's choice. Importantly, the student may additionally want someone from the industry to act as a Mentor on matters relating to the workplace.

From once saying this is how the world is, to say this is how the world could be, the teacher moves on to tell the student, "let's together find how the world ought to be." Collaborative learning will find a flavor and become more ubiquitous. Students and teachers will connect to Google Classroom, Google Meet, Cisco Webex, Microsoft Teams and other cloud-based platforms to communicate, share work, and do projects. Remem-

ber, students study to live in the big bad outside world. So, educators will provide learners with weapons, which will help survive in the world around them. Goals will be continuously modified to prepare them for an ever-changing workplace. Teachers will embolden students to learn from failures.



The cloud will carry anything that one needs. If one wants lesson plans, it will be there. If one wants an example to explain Newton’s second law of motions, it will be there. If one wants to know which is the capital of Uzbekistan, it will be there. The great teachers of tomorrow can never be able to compete with Google for information. But Google, unlike a star professor, can never be a master storyteller. No student can go to Professor Google to sob on his shoulder, but he can go to a professor to get his emotional side right. The superstars of tomorrow will emerge from here, a club with a clever mix of knowledge and empathy.

Artificial Intelligence, Virtual Reality, and Augmented Reality will enter classrooms more fully. This will empower teaching methods and learning experiences. ‘Open innovation’ will be the new buzzword. It means bringing various institutions for competitions. ‘Learnathon’ will become the rage, as students need pragmatic skills, communication strategies, and managerial abilities to win in the workplace. Teachers must employ open innovation techniques instead of standardized testing to assess the strength of the pupils.

At the doctoral level, the Guide and the wannabe Ph.D. will present an original thesis. Once they bond well, later, they may end up working together. The relationship then transcends teaching and steps into the ‘profession.’ ■



TAKEAWAYS AND CALL FOR ACTION

The teacher-student relationship has changed. The Guru is now a friend and a mentor.

Encourage teachers to embrace the new reality.

Personalize learning and courseware like Dell did to computers.

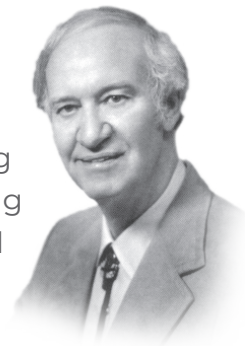
Assign one mentor, either from the campus or from the industry, to five students.

Facilitate open and transparent relationship.

TREND 2

Rise of SELF-LEARNING

“Self-learning is a process by which individuals take the initiative, with or without the assistance of others, in diagnosing learning needs, formulating learning goals, identifying human and material resources for learning, and evaluating learning outcomes.”



– **Malcolm Knowles**

HAVE WE not seen a one-year-old kid operating the touchscreen with elan? Have we not seen it punch the right channel number on the remote to watch Pogo? How did the child learn? Who taught it? Yes, nobody did, and the kid learned it all by itself. Enter self-learning.

Self-learning or ‘learning by oneself’ is going to be the most visible megatrend in the 2020s.



In self-learning, you, either by yourself or with the help of a mentor, identify your needs, lay down your goals, and list the reading material. You then decide where, when, and which activities you will perform to learn. You take a call based on your abilities and interests. While learning, you will have no teacher alongside. You can learn along with your friends (group or combined study), but again there will be no mentor by your side. You turn up for class well prepared for the day's lecture.

The world's most extensive 'how-to' video library, also known as YouTube, has already initiated us into self-learning.

PAST

This idea of self-learning may be a 21st-century buzzword, but its use is rooted in history. Distance education dates back to the 19th century when British national Isaac Pitman took to it to teach shorthand. In India, it began in 1962 and has been a big hit. The AMIE course, a close cousin of engineering, is a standout example. Thanks to distance learning, lacs of people graduated, studying their favorite subjects from the comfort of their home.

We should dip into India's epics for more inspiration. In the Mahabharata, when Dronacharya refuses to tutor archery to Ekalavya, the irascible lad hides at a distance, learns the techniques on his own watching the teacher, later practices in front of a bust of the Acharya and one day becomes a master archer.

That was an early example of self-learning. There are many self-learners in the modern era: Serbian Inventor Nikola Tesla, Apple co-founder Steve Jobs, and Microsoft Co-creator Bill Gates, are names that come to the mind. In India, a couple of autodidacts, aka self-learners, are the noted playback singer Kishore Kumar and the well-known motivational speaker Mukul Deva. For Kumar, KL Saigal was the Dronacharya during his initial days, and for Deva, his

MOOC PLATFORMS

(Massive Open Online Courses)

MOOC platforms are free. Some of the ones you can explore are:

- NPTEL – National Program on Technology Enhanced Learning; An MHRD project
- 'Swayam' in NPTEL where students enroll for online courses and take up an examination. Experts from top educational institutes deliver the course.





FACEBOOK OF EDUCATION

In 2015-16, AICTE came up with SWAYAM 1.0, a MOOC platform similar to Coursera of Stanford and edX of MIT, It was done with Microsoft's support, and has 2800 courses. Now, IIT Madras is creating SWAYAM 2.0. This platform not only provides video lectures but also course materials in various formats. Also, there is a discussion forum, where learners can pose questions, anyone in the group can answer, and the faculty monitors to ensure course correction. Finally, there is an assessment and evaluation system, making it holistic.

Prof. Anil D Sahasrabudhe
Chairman, AICTE



army-stint plus experience as an entrepreneur fueled his public speaking passion. Edmund Thomas Clint (1976-1983) was a self-taught child prodigy from Kerala, who during his short life of seven years, drew 25,000 paintings. Clint Road in Kochi is named after him.

PRESENT

There are several reasons why self-learning has become a rage recently, the primary one being there is so much knowledge available in the outside world that a teacher cannot teach everything in a classroom. The teacher is also not sure if everyone must be taught in a standardized way. After all, a class is not homogeneous in terms of interest, intelligence, and involvement. No wonder that with plenty of online materials available on almost all the topics, online teaching platforms like Udemy and Teachable proliferating, and several educational apps in the bazaar, self-learning is receiving incredible fillip. A 2016 stack overflow poll reported 69.1% of software developers as self-taught.

It is worth looking at the merits of self-learning. First, it's interlinked with curiosity. If you have curiosity, you will self-learn. And if you self-learn, your interest will increase! With curiosity, you search more, discover more, and efficiently study the subject. As you learn at your own pace and time, there is no stress. Secondly, content is available either free or at a fraction of what it costs in face-to-face courses. So it makes economic sense to self-learn. Finally, from the comfort of your home, you can access world-class professors from top-notch universities. You can pick a certification from Harvard or Massachusetts, with-



The total number of people who use YouTube – **2,000,000,000.**

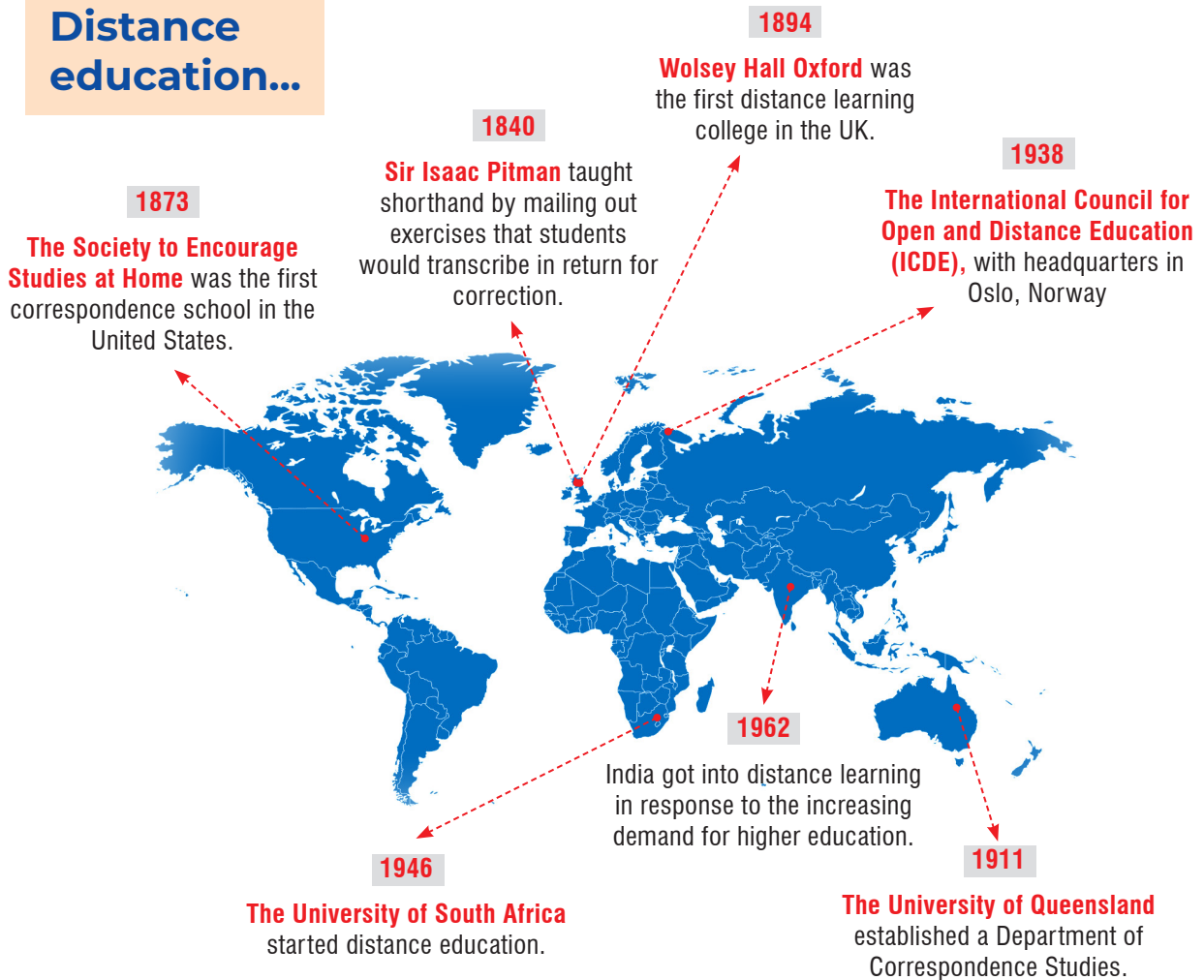
Almost **5 billion videos** are watched on YouTube every single day.

500 hours of video are uploaded to YouTube every minute!

The average number of mobile YouTube video views per day is **1,000,000,000**

* As of March 2020

Distance education...



out moving an inch outside your living room. The icing on the cake is that self-learning hones your problem-solving skills, as you have to find solutions without formal guidance.

But to win in self-learning, you must have interest, curiosity, and self-motivation. There will be no mentors to personally regulate you. So self-regulation is the key. There is formally no one to correct you when you make mistakes. You can overcome this by reaching out to your teachers. You can also connect with peers or with online communities. In today's world, with every idea that spikes in your head, you dip into Professor Google for an answer. That's again, self-learning. When the QuickTime on Mac refuses to record a movie, the self-learner googles, figures out the steps to set it right, performs it, and presto QuickTime works. The all-powerful search engines have made people's jobs easy.

Critics argue that the lack of human touch in E-learning creates a lack of motivation. But their concerns notwithstanding, self-learning is the future.



FUTURE

The Internet is similar to the physical world except that it is in cyberspace. It is a non-living platform that does not need oxygen to breathe and is home to a lot of information, entry points, texts, and resources that help us pursue learning. We must, however, keep a sharp eye and filter the data.

HOW TO SELF-LEARN

There are various ways to approach self-learning. Some viewpoints are below:

- Google search
- Reading blogs
- Articles in magazines/journals
- Reading books
- Conducting surveys
- Knowledge sharing sessions
- Study groups

Knowledge is exploding at a frenetic pace. It may not be possible to pick up all of this knowledge in a regular college. When you get into the workplace, you cannot keep turning to bricks and mortar classes. You will be on your own and learn by yourself. The best way to pick the skill of 'learning to learn' is in college. Educational institutions must push students to do self-learning in at least 25 percent of the syllabus. Their job would be to curate what is online and suggest to students the sources of reading. Winning universities must make a list of 100 online courses, and give credit points and certificates for students who successfully complete it. Since self-learning comes with practice, schoolteachers should allot self-learning projects for children from Grade 8 onwards to kindle their motivation and fine-tune their thinking.

Today, some of the popular self-learning courses are in Programming, Web Development, AI, Data Science, Digital Marketing, Languages, Machine Learning, and Counseling and Psychology. For anyone who wants to place content, they must ensure that materials are right, the matter is accessible on multiple devices, and visuals are pleasing.

To win, you will have to have the twin skills of self-regulation and motivation. The challenge lies in the ability to do this consistently over an extended period. ■



TAKEAWAYS AND CALL FOR ACTION

Facilitate programs on Critical Thinking.

Encourage students to question things and ponder over ideas.

Ensure 25 percent of courses a student takes are on self-learning.

Offer at least 100 courses for self-learning.

Curate information on the net for self-learning.




ICTACADEMY

TREND 3

Coming of age of BLENDED LEARNING

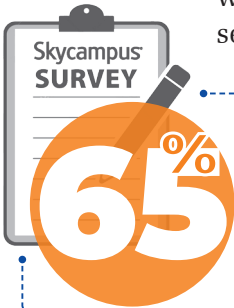
“We must honor and engage the ideas, enthusiasm, and commitment of our students through excellence in teaching... Blended learning is a terrific example of combining the strengths of multiple methods into powerful educational experiences that benefit our students.”

KATHRYN VANDENBOSCH,
Dean, University Of Wisconsin–Madison



THE FACE-TO-FACE MODEL is how most people accumulated knowledge.

Historically, the self-learning model gained currency primarily due to the need for life-long learning. In the years ahead, it will become mainstream for reasons of time and space. So, should it be *this-or-that*? Meaning, should we choose between face-to-face and self-learning. Or, can it be *this-and-that*? Meaning, can we select both face-to-face and self-learning? If anyone checked the second box, it means the person voted for blended learning.



believe that more than 40% of class timing should be on videos, simulations, and audio



think that blended learning will help reduce the gap between industry expectations and academic offerings

Why do you need blended learning?

If you are taught in a classroom, you absorb the information faster and can have doubts clarified instantly. But you will still opt for some self-learning because it solves issues relating to long commutes, and brings personalization to the table. Revising at home, dipping into more books for an explanation, and doing homework are exercises in self-learning. Adults who are less fortunate than you, and who missed out on early education, due to financial stress or otherwise, can with self-learning catch up on lost time. While the girl-student dropouts have decreased over the years, blended learning is a solution to get the number to the negligible point. In more conservative societies, women can learn online and attend colleges for assessments and tests. This is not about misogyny but is about being practical to the issues in the developing countries of the world.

Blended learning integrates online education with traditional brick-and-mortar classrooms. A dedicated teacher in a real classroom leads these programs, and the course involves digital apprenticeships. There is a clearly laid plan, no aimless shoots. These sessions use smartphones, video-conferencing, and other emerging electronic media.

PAST

Let us look at the history from the 1990s. That decade saw the emergence of compact discs (aka CD) as a provider of technology-based education to supplement classroom instruction. Learning management systems came up to track progress. The Aviation industry was an early user. Contact classes, in the case of distance learning, is another example of blended learning. This is the norm in courses run by IGNOU, IIMs, ISB, and several other institutions. Self-organized revision class in correspondence courses is a third example.

Today, the blending part of blended learning is delivered online.

PRESENT

Business schools use flipped classes. The result is that what otherwise takes 100 hours to teach happens in 33-hours in the classroom because the other 67 hours occur elsewhere, namely home.

When colleges' flip' their classes, students study online and then attend the classroom to discuss topics in-depth. In the class, the teacher acts as a facilitator. The teacher picks students at random and asks them questions. If they are unable to answer, someone in the class responds. The teacher hears multiple views and



SOCIAL MEDIA FOR SELF-LEARNING

- Blogs to discuss information;
- Twitter to encourage debates;
- Skype to get deeper into the subject ;
- Pinterest for sharing smart ideas;
- Google Docs to store and refine data;
- Project Management Apps to foster collaboration;
- LinkedIn to build connections;
- YouTube to create presentations.

HOW TO SET IT UP

Steps in setting up a Blended Learning Structure

- 1 Choose a suitable learning model
- 2 Maximize the options available for students
- 3 Brief the stakeholders on the objectives of choosing blended learning.
- 4 Implement a learning management system.
- 5 Allow everyone in the world to access your educational resources.
- 6 Communicate regularly with students
- 7 Continue assessment techniques
- 8 Gather continuous feedback

consolidates before sharing his wisdom. That way, various shades of opinion are listened to.

Today, flipped classes are powerful as there are several forms of self-learning readily available: Oral, audio, visual, etc. If you learn and come to class, the expert teacher's time is put to the maximum benefit. The teacher will not have to drill out what is mundane. To give a specific example, you don't need a teacher to tell you that Washington DC is the capital of the US. But you need a teacher to tell you why New York is not the capital city. The teacher now gets the time to do that. Also, classroom time is then spent to develop other skills.

Summer placement and internships, medical house surgeon, and chartered accountancy articles are all examples of blended learning.

Some of the blended-learning models currently practiced are:

1. **F2F:** The teacher teaches and then augments with digital tools.
2. **Rotation:** Students rotate between working online and having face-to-face learning with a teacher offline. Elementary schools in the US work on this model.
3. **Flex:** Hundreds of students join the course, the material is distributed online, and teachers are present on-site for any support. This is the Open University model.
4. **Online Lab:** This helps colleges offer courses that they cannot run offline because there are not enough experts to teach.
5. **Self-Blend:** Students take additional digital classes beyond what is already offered at the university. This enables the student to pursue his interest in a subject that is not covered in college.
6. **Online driver:** Students complete an entire course online with minimal teacher intervention.

FUTURE

In India, there is a gap between what the industry expects and what the academia offers. Blended learning will bridge the gap, especially where there is a shortage of teachers, and there are students without relevant skills. The AICTE has recommended long-duration training in companies for the engineering aspirants. A medical doctor is not certified to practice until he does a house surgeon. The chartered accountancy program mandates blended learning.

Blended learning will cut across subjects. Consider these:

MEDICAL CLASSROOM: Short videos about current medical topics get circulated, and students watch it up before attending classes. In classes, the focus is on how to apply medicine.

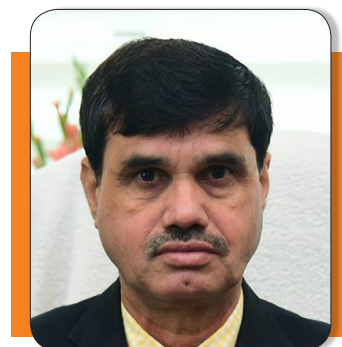
ENGLISH LANGUAGE: For English speaking and learning, teaching will be entirely online.

SCIENCE: Students go through pre-recorded lectures, take a quiz, and jot down the answers. In the class, the information in the videos is applied through group discussions and hands-on simulations.

MATH: Pre-lecture videos are dispensed, and students take quizzes at home. In the class, concept questions and in-class exercises are distributed.

Blended learning, not exclusive self-learning, is the mantra as nobody wants to compromise on the benefits of traditional education. After all, the doctor-patient experience in a hospital has to be experienced. Chemical changes in substances seen online, and when viewed in a lab, make a lot of difference. To touch, feel, and notice changes in temperature and pressure, are an essential part of learning. Learning to work under peer pressure, or emerge as a public speaker, etc., cannot be achieved online. Remember, you cannot swim or cycle online.

All institutions, public or private, will adapt to the change, and all educators will upskill themselves. Remember, that in the ongoing lockdown, educators facilely transitioned online. From elementary schools to universities, teachers and students kept the show going. Students are taking their lessons, uploading assignments, taking online tests, and are excited to be working in a new format. ■



NEAT (National Educational Alliance for Technology), is a scheme for using technology for better learning outcomes. NEAT envisions using AI to make learning more personalized. Several Ed-Tech Companies' have developed Adaptive Learning techniques to address the diversity of learners and are offering certification in highly marketable skills. MHRD would like to collaborate with such companies through AICTE.

Dr. M P Poonia

Vice Chairman, AICTE



TAKEAWAYS AND CALL FOR ACTION

Invest in blended learning.

Drop having classes in the standup-and-deliver mode.

Train faculty members for it.

75 percent of courses should be on blended learning.

Redesign courses for blended learning with the help of industry.



RESOURCES

While the methodology of teaching changes, universities will have to modernize their resources. They must invest in state-of-the-art online laboratories and simulators, an extensive interconnected virtual library, and embrace cloud-based broadcast platforms that will help conduct webcasts, webinars, and webconferences.

TREND

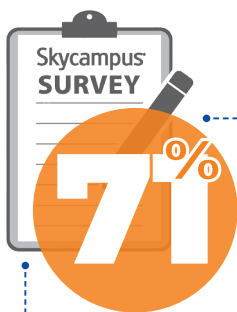
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LIBRARIES will go Digital

It would be wonderful if sitting in a remote village in India, someone can access a book placed in the third row of the fourth stack of a library at Harvard. And it would be dramatic if he could draw it, make margin notes, and return the book without shifting his weight from his seat. Once a plot in a science fiction, the Internet has now made it a reality.

AN ENTIRE generation, born in the mid-1980s, grew up without stepping inside a bank to draw cash. There is a threat that another generation is now growing up without walking into a bricks-and-mortar library. Power to the smartphone is reality. That 3-inch by 6-inch gadget houses not only the camera, recorder, and alarm, but also the bank account and library. Of course, it is also a telephone!

The reasons for libraries going digital is simple. People want information on the fly and expect it to be updated to the second. The cost of maintaining these in physical form is prohibitive. The Internet, which is awake 24/7, is the obvious answer. If someone is 'online,' it is safe to assume he is looking at, watching, or listening to a piece of digital information. The idea of a book talking to its reader was once science fiction. Today, audiobooks and video explanations that can be heard and watched, sell like hotcakes.



71% believe that we must promote online library.

PAST

One of the earliest-known digital libraries was the Education Resources Information Center (ERIC), created in 1964 and made available online in 1969. ERIC is a database of education citations, abstracts and texts. The arrival of Internet acted as a catalyst for change when it comes to digital libraries. The term 'digital library' was first popularized in 1994 by the NASA Digital Libraries Initiative. Since then, the importance of having a digital platform to collect, manage, and preserve information has been high.

PRESENT

India is in the experimental phase of digital libraries. The majority of libraries provide bibliographic access and act as metadata platforms that provide information on information. For example, the National Digital Library of India, set up by the Ministry of Human Resource Development, is a library of information for learners to find the right resources with minimum effort. The Health Education Library for People (HELP), Mumbai; Tata Institute of Fundamental Research (TIFR), Mumbai; Indian Institute of Technology, Kharagpur; and National Center for Science Information (NCSI), Bengaluru; have all made notable advancements.

A significant contributor to the building blocks of digital libraries is Khan Academy. An American nonprofit organization created by Sal Khan in 2008, it provides educational content in the form of short videos on several subjects. The platform's quality has been globally appreciated. There are more and more such outfits springing up.

FUTURE

One generation grew up on Darrell Rivers, Malory Towers, and Enid Blyton while another on Harry Potter, Hogwarts School, and JK Rowling. But physical books are set to change. A digital library will be the go-to place for tomorrow's citizens.

As we step into the third decade of the 21st century, it is clear that digital libraries will be the way forward. Here's why. One can carry hordes of books on a smartphone. With audios and videos thrown in, it compresses time and space and makes learning at one's sweet time fun. Better still, everyone has access to the same information, making knowledge-seeking secular.



A few global digital libraries widely popular in schools and universities are:

1. National Library
www.nationallibrary.gov.in
2. World Digital Library.
www.wdl.org
3. Project Gutenberg.
www.gutenberg.org
4. Bartleby.
www.bartleby.com
5. ibiblio.
www.ibiblio.org
6. Google Books.
books.google.co.in
7. Open Library
www.openlibrary.org



The government's focus will shift from building brick and mortar institutions to strengthening the digital infrastructure to empower rural India. The next challenge would be capacity building for teachers to get them enabled to teach online, and making choices about the right platform from the many that are available. The National Digital Library of India is a great platform where a plethora of resources is available for students to learn from home.

Dr. Pankaj Mittal

Secretary General,
Association of Indian
Universities



No one has to pore over books to identify appropriate content. Search engines throw out relevant finds in seconds. The storage is in the cloud, and this eliminates real estate costs. For the reader, articles, videos, podcasts, books, and e-books are accessible at affordable prices, and majorly free of charge! Of course, the physical libraries will exist, but as reading rooms where people can come and learn without the noise and disturbance, a home or office environment causes.

But digital content comes with its share of challenges. Copyright is one of them. Thanks to the Internet, copyright is being misunderstood as the 'right to copy.' Proposals have now been put forward to free digital libraries from copyright laws. Let us not forget that when libraries offer free access, writers are shortchanged, and that's sad. A trend that will emerge is the battle between 'paid' versus 'unpaid' content. Should knowledge be free like air, or is it like the cloud that you pay and use? These are questions humanity will fight over till the cows come home. On a scale of 10, if unpaid content is at 5, paid content will have to be at 10, to rake in cash.

How does one know which is of rich quality? In the gig economy, everybody is going to drop in content. This is where a new breed of curators will emerge, segregating the Picassos from the pretenders. These will be institutions that will rate the content for utility and quality. It is also possible that, in line with the real spirit democracy, the reader will choose. However, some form of ISO evaluation and categorization will emerge. To assume expert opinion as fact without due research would be sad.

Rare documents and books of the past will get digitized. All written material will be scanned to enable text searching and shall be there 'free-to-read' on the Internet. Robotics and AI will be virtual librarians of the future with the ability to code, scan, store, record, navigate, and retrieve the digital books.

People seated in different locations working on a project is now the done thing. Next, collaboration among digital libraries is necessary so that researchers and scholars can expand their search across disciplines, and survive generations. People will sit across libraries in different parts of the world to work as a team. To efficiently use digital data, its optimal storage and security are imperative. YouTube, on an annual basis, generates quadrillion bytes of data a year. If not appropriately managed, YouTube will

LIBRARIES will become fun. Big data will create a personalized user experience, Blockchain will connect a network of libraries across universities, and RFID will help track room usage and attendance. Self-service kiosks will dot the landscape and can be monitored from the main library. Apps will help locate a book and suggest in which library it is available. Apart from online retrieval, people can visit the library to pick the book. There the visitor enters the book he needs, and a machine goes out and fetches it. AR and VR technologies will sit in library



books, making learning enriching. Recall Pokemon Go is an example of AR. The app used the camera phone to track the user's surroundings and laid out extra information on the screen. Google's DayDream View is an example of VR.

collapse. Similarly, digital libraries have mountain loads of books, and organized storage, maintenance, and retrieval are essential. They should be managed well, lest they fall.

Organizations are working on digital libraries with budgets exceeding \$10 million. Google and Universal Library Project (better known as the Million Books Project) could soon make big announcements. Technological advancements will lead to the global availability of a large variety of multimedia content. Online content will increasingly be the basis of research. What is not there on the Internet will be assumed to be not available in the world! If in the 2120, someone picks an article written today, the vision with which digital libraries are promoted would be achieved. At some point in this century, a generation may wonder, "did people go to bricks-and-mortar libraries?" ■



TAKEAWAYS AND CALL FOR ACTION

Let library kiosks span across the university.

Build a community of online libraries.

Make the physical library attractive reading rooms.

Consider library as multi-dimensional platform

Curate content. Stamp them to validate the library's value

ONLINE LABS and Simulators

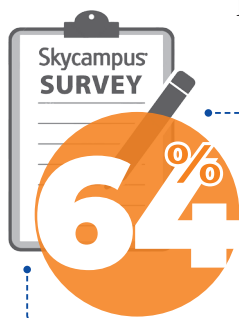
ALL OF US, including those who later picked humanities or commerce, have stepped into science laboratories to perform experiments. The Bunsen burners, sulfuric acid, and frog dissections are a part of folklore. Many were excited when chemistry equations came alive in the lab, and we realized that what the teacher taught in the classroom was true! The use of laboratories as an integral part of science education is now more than two centuries old.

PAST

Those who have seen it, and have physically done it are unlikely to forget it. That is why chemistry, physics, and biology are taught in the laboratory. No one learns cricket or swimming by hearing lectures in the classroom. One has to jump into the playfield or into the pool, as the case may be, to master the game. But there are areas that, for a variety of reasons, one cannot directly experience.

For example, is there a lab session for a history lesson?

That is where simulators and games step. A simulator copies activities from real life in the form of a game. An artificial environment is created which enhances practical learning and is the equivalent of a science laboratory. But there is more to it than just that.



64% believe online labs will be very effective for students to understand the subject

PRESENT

A young man wants to learn to drive a car. But his early days in the driving school will not be on the main road but indoor; inside a driver-training simulator. The simulator will have a real dashboard, controls, instrumentation, and transmission. This simulator gives him an excellent education on safe driving. Later, when he is in a real car, he will be faster in picking up driving, compared to those who didn't have simulation training. Nothing like the real thing, indeed!

If you join a flying school, you will not be taken to the airstrip to start flying. Instead, you will be taken inside simulators. A flight simulator artificially re-creates the environment in which the aircraft operates, and teaches a prospective pilot on how aircraft react to applications of flight controls, and to external factors such as air density drop and turbulence. These exercises enhance your skills, reduce risks, and make you a better pilot.

If you want to test your stock market trading skills, you should not put your money in the market straight away. Instead, you should play a stock market simulator game where you will trade in real stocks using virtual money. It takes you closest to the actual trading, showing how markets behave and gives you a firsthand blow of the profitability of your trading strategy. You will begin with Rs 5 lac of virtual money. The stock prices shown are from delayed feed and thus are close to reality. These help you to practice your trading strategy without losing money. You can create a virtual portfolio. All these are embedded in classroom learning when you study the capital assets pricing model in your paper on Financial Markets.

In an international finance class, a student can play a simulated game. The teacher groups the students into businessmen of five countries. The teacher gives them products, stock, and home currencies. They can use the money to buy local products and assets. They can convert local into the foreign exchange to buy foreign goods and assets. When the session ends, the students will have to record their country's net exports, net foreign investments, foreign exchange transactions, and balances on current and capital accounts. They will thus learn how net exports and net foreign investments are equal. They will also understand the relationship between a country's current account and capital account balances.

ALL IN THE GAME



The POLITICAL MACHINE is a government simulation game where the player leads a campaign to elect the President of the United States. The player travels from state-to-state and engages in a number of activities to either raise money or poll numbers. The 2020 version is now on.



An MHRD Govt of India Initiative

The VIRTUAL LAB of the Ministry of Human Resource Development seeks to provide remote-access to Laboratories.



TEN YEARS AGO...

two virtual labs were added to the NPTEL platform. One was for simulated experiments and the other for remote-controlled labs. Mock labs enabled lakhs of people to simultaneously carry on the tests. The remotely controlled labs addressed the paucity of high-end equipment by allowing colleges to utilize the resources available with one institution.

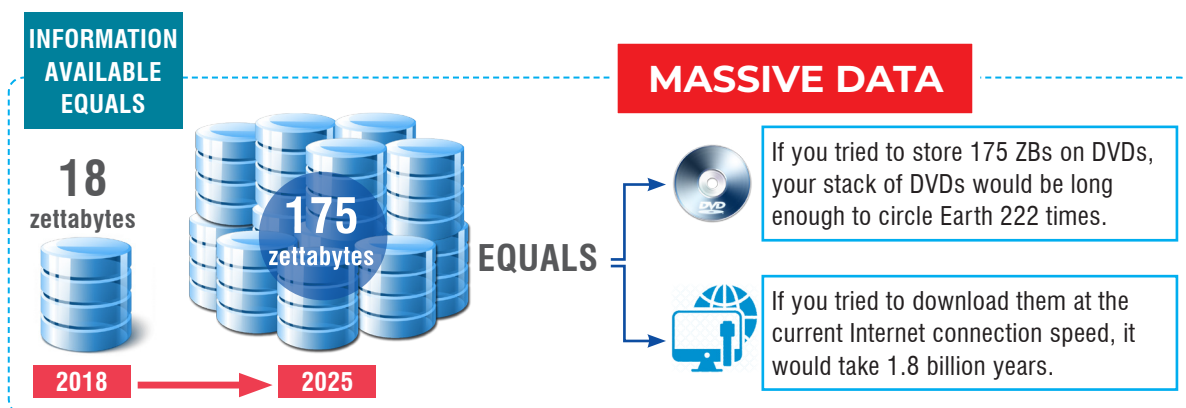
FUTURE

Louis Pasteur famously remarked, “Without laboratories, men of science are soldiers without arms.” As the dictionary says, “a laboratory is a facility that provides controlled conditions in which scientific or technological research, experiments, and measurements may be performed.”

Both science and other subjects will see laboratories in the future, thanks to simulators. And many of these laboratories, in particular the ones on science, will be on cyberspace because a lack of resources, physical distances, and expensive instruments to establish the bricks-and-mortar ones will make their online version the trend. The student needs a laptop or smartphone, an Internet connection, and connectivity to enter the virtual labs.

The virtual laboratory simulates a physical laboratory. A student can have simple 2D animations that can be viewed on desktops, and advanced 3D experiences that he can view in VR headsets. Virtual reality is used in history, geography, and science. There will be more simulation-based labs and remote-triggered labs. The former will be entirely online with simulations carried out remotely, and the results obtained. It’s scalable, and many students can do it at a time of their choice, from anywhere. The remote-triggered virtual labs will be where the actual experiments are done from remote. The output will be communicated over the Internet in real-time. Unlike Simulation-based virtual labs, these are not scalable and cater to limited students.

With online laboratories, students can access machines anytime from anywhere and can practice before getting into a real lab. There will be no time pressures. He can speed up to complete experiments faster, or slow down to watch details of a chemical reaction. He can repeat experiments multiple times. Feedback is instantaneous. Animations add pep as a student





visualizes life science down to the molecular level. A virtual lab eliminates ethical dilemmas since the animals being dissected are virtual, not real. Students can use the lab as a pre-lab exercise or a post-lab exercise, meaning either before or after the physical lab, if you have one.

Virtual labs use AR and VR, which increase interest, attention, and curiosity. Videos, animations, and demonstrations make learning impactful. Several electrical, chemical, and physics experiments are challenging to perform in real-time life due to safety hazards. With virtual labs, you can learn and experiment in a safe environment. There is no waiting time; you can do experiments at your own pace and convenience, thereby improving learning. Also, the results are immediate. Researchers can repeat experiments multiple times until they are satisfied.

It is true that in a virtual lab, touch, feel, and smell sensory is not involved. Hardcore scientists will tell you that it was the sight, smell, and sound of reactions that made them remember things forever. For that, a physical lab may be visited once in a while. ■

OBJECTIVES OF VIRTUAL LABS

To provide remote-access to Labs in various disciplines of Science and Engineering. These Virtual Labs would cater to students at the undergraduate level, postgraduate level, as well as to research scholars.

To enthuse students to conduct experiments by arousing their curiosity. This would help them in learning basic and advanced concepts through remote experimentation.

To provide a complete Learning Management System around the Virtual Labs where the students can avail the various tools for learning, including additional web-resources, video-lectures, animated demonstrations, and self evaluation.

To share costly equipment and resources, which are otherwise available to limited number of users due to constraints on time and geographical distances.

Source: www.vlab.co.in



TAKEAWAYS AND CALL FOR ACTION

Subscribe to online laboratories.

Let online and practical hands-on co-exist.

Be the champion for gamification.

Swear by AR/VR. Move from traditional equipment to more visual tools.

Do this for all subjects.

TREND 6

WEBINARS are the new meeting points

Webinars are fast becoming the new meeting place, the new coffee shops. During the COVID-19 lockdown, people experienced the joy associated with saving time and space in the conduct of these meetings. This will be the new-normal.

WE KNOW about seminars and conferences. They are physical meetings. Now online sessions are slowly becoming popular, and we will soon hear a lot more about webcasts, webinars, web-conferences, and video-conferencing in the coming years.

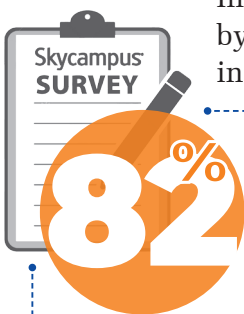
Let's get a few terms past us.

PAST

In a seminar, a single person talks to an audience. This is followed by a Q&A session. The event happens live, and the speaker is there in flesh and blood for him to shake hands with participants. In

a seminar, the seats available in the venue decide the number of attendees.

In a conference, multidisciplinary topics are covered in parallel sessions. Students, young researchers, and faculty members present their work.



are keen that institutions should run online webcasts, webinars, and webconferences

That way, a conference is several seminars happening concurrently.

This has been the default mode predominantly.

PRESENT

An online meeting is over the Internet, usually via a browser or a specific application. One could have either (a) Web conference or (b) Video conference. In all cases, every participant theoretically has access to both audio and video.



A web conference is an online meeting that uses audio and video among people anywhere in the globe. The three types of web conferences are Webcasts, Webinars, and peer-level web meetings. A webcast does not allow for any interaction with the audience. The speaker turns up, delivers, and departs. In a webinar, there are limited communication options such as chat, polls, and Q&A. In a web meeting, participants can interact with each other and the host.

In a video conference, every participant is a presenter, and every presenter is a participant. Web conferences are better for outreach, while video conferences provide more engagement.


The upshot of this is that one need not wait for physical conferences, travel borders, or spend heavily to listen to favorite speakers. The online webinars and conferences have broken the stranglehold of physical meets. Companies, especially transnational ones, have been using these options for quite a few years.

At the learning and development level, this practice has just begun and will accelerate.

FUTURE

Increasingly, people can access high-quality education via the Internet. The proliferation of internet-based education has opened access to education to a broader population through real-time online classes. This means there are plenty of people who are advancing their knowledge and skills, who would have otherwise not been able to do so.

“



With the rise of digital interventions, there will be developments in virtual labs and webinars. Today, our internships are still not up to the mark, and project-based learning has to develop.

Dr. Sandeep Sancheti
Vice Chancellor SRM Institute of Science and Technology

”



HOW TO

On deciding the topic, analyze if it is suitable for a webinar, conference, or none of the two.

Have a meeting agenda and stick to the time, topic, and purpose of the program.

Remember to show your face now and then, while presenting a topic.

Solicit more feedbacks and interactions.

Ensuring that a presenter takes control of not only the presentation but also its reach to students.

Having said that, real-time online classes have their challenges. For instance, with different time zones and different working schedules of students around the world, it is difficult to schedule a course when every student is available. This is where webinars will come in handy. Importantly, the benefits of webinars mean that educational institutions of all sizes never have to compromise on the quality of their education.

Teachers have started using tools like Google Classroom, Zoom, and YouTube to interact with students and track their progress. Though teachers would like a classroom for personal-connect, digital classes are fast emerging. Using an online platform has given lots of benefits in terms of cost and time.

Online webinars have introduced people to new interactive meeting platforms, a broader audience base, and being more social through social media platforms like YouTube, Facebook, LinkedIn, etc., leading to an open mind to adopt change through technology. These webinars will create opportunities like meeting management and IT tool management, and given the burgeoning volume, one can see this as a lucrative business opportunity.

Suddenly these are even emerging as simple, cost-effective revenue models. This is the new normal. ■



TAKEAWAYS AND CALL FOR ACTION

The web will be the new meeting place.

Physical meetings will be 20th-century stuff.

It's now possible to get the best-in-world work with you.

Get world-class teachers and speakers.

OUTCOME

Exams are an integral part of life, and they bring in objectivity. The paper-and-pen tests are getting outdated, and a modern automated process, right from paper setting to evaluation, is on the way. To meet the eccentricities of life, every student is tagged to a mentor who work in the industry. Companies will find candidates through social media even as hiring gets driven predominantly by artificial intelligence.

TREND 7

Anywhere, Anytime EXAMINATIONS

“The biggest form of peer pressure as a teenager wasn’t drugs, alcohol, or cigarettes. It came during exams when it was completely silent and you heard everyone turn to page 2 while you were still on the first question.” — **Fuad Alakbarov**

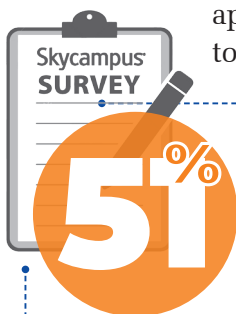
IT WOULD HAVE been lovely if there were no pressure of assessments for a student! But in a competitive environment, there has to be a measure to test progress. In business, there will be winners and runners up, and examinations are the early initiation into experiencing the ups and downs.

PAST

The traditional examination involved paper setting, organizing test centers, invigilators, and evaluators.

These cost time and money, and included stress, strain, and drain. Endless applicants, shortlisting physical test facilities, and deciding invigilators to proctor exams were an organizer’s nightmare. They still are. There are challenges in managing the logistics, the money, and the disruption of regular college functioning. Valuing and then revaluing papers of angry respondents is no teacher’s idea of fun.

Is there a better way of doing things? Enter online exams.



people think there is a more than 60% probability of taking exams online

PRESENT

While the traditional-type examinations continue to be practiced, by and large, some changes are taking place.

Prometric, aka Prometric Testing, is a U.S.-based company in the test administration industry. It sells several services, including test development, test delivery, and data management capabilities.

Prometric ushered in a revolution many years ago with online testing replacing the traditional paper-and-pen model. The chances of data manipulation, cheating, and paper leaks were reduced. A fingerprint scan was enough to identify a candidate. Prometric began with basic online exams, which were successfully conducted safely and securely. Gradually, they started to do high-stake tests as institutions across the world began to back it.

FUTURE

Teachers mentor kids in what is best for them, telling them the various career choices available. A definitive way to measure the ability and personality of kids will emerge.

Psychometric tests, MBTI assessments, Interest inventory, etc., will all become a part of the kit in every school, and perhaps even in every college, as students will begin to make more informed decisions about career. There will be no necessity for students of the world to look only at engineering, medicine, law, or accounting as options. Career awareness by experts will be regular as they share their experience in the workplace. Counselors responsible for career planning and selection will dot every institution from the school level.

In universities, most examinations will take the open-book format, and essay-type questions are set to disappear. Multiple-choice questions (aka MCQs), 2-mark questions, short-questions, situation-driven questions, case studies, and many such changes will take place right at the graduate levels.

The nature of questions will be to test understanding than to test memory. For example, in a marketing paper, no one is going to be asked, “What are the four Ps of marketing?” That can be copy-pasted from the textbook! He is instead told to write how he would sell a pen to the examiner by applying the four Ps of marketing. An answer for this cannot be copied, isn't it?



PWAs

We install an app to use it. With Progressive Web App (PWA), there is no need for installation. The PWA is a website with an app-like experience. Over time, the app becomes more powerful, loads quickly, and has an icon on the home screen, etc. Using PWAs, a student gets the feel of an online environment even when his connection is unstable.

TWO TEACHING-LEARNING REFORMS

From bookish to the open exam:

Exams test rote memory and IQ. But in the outside world, you have access to books, and you need both EQ and SQ to win. While the last two are difficult to grade in classrooms, universities allow students to carry books to the exam. This is not legitimizing cheating (!) but to test a candidate in the simulated life-like situation. He should know where to look. The digital transition is pushing educators to open book exams.

From academics to vocational courses:

Not everyone needs to become a doctor, an engineer, a lawyer, an architect, or an accountant. There is enough and more work for electricians, plumbers, fitters, mechanics, etc. Educational institutions should push vocational training courses, but society must remove the stigma attached to it.

Here are other emerging innovations. Question papers will not be sent to the examination centers. Fifteen minutes before the start, the Controller of Exams presses a button in his office, and relevant copies of the question paper will be printed at the centers' offices, which will then be distributed to the students. Not just the sequence of questions in the paper will be different, but the sequence of the answers too would be. This will mean that in a 100-question MCQ with four choices, technically, there will be a possibility of generating lacs of papers. Copying is virtually ruled out. Jammers will operate at the workplace so that a candidate does not access remote help. Another innovation is that the same question with numbers altered could come for different students, even in a non-MCQ paper. Like if the problem is "find the circumference of a circle," one candidate will be given that the diameter is 2 inches, while another will be told it is 3 inches. The order of the question, too, will be changed. Consequently, everyone writes a different paper, even though he is being tested on the same concepts. Yes, we will move towards one candidate, one question paper.

All exams will ultimately move online. It can be taken anytime, anywhere. Often, it is auto-assessed. Reachability, scalability, and security make online examinations unbeatable. Technology-enabled assessments unify testing, instruction, and learning into a single experience. AI will be used to evaluate theory papers, including linguistic skills. The Graduate Record Examination is already supposedly on it. Many premier Indian educational institutions are working towards it. This is because everything should not be tested on the MCQ mode.

Soon sophisticated systems will be in place to implement center-less exams. Exams will move home. Just like work from home, there will be exams from home. Software that could use facial recognition, assessment of facial muscles, and other factors will be employed to determine the candidate's action when taking tests to determine if he is cheating. An AI-driven Chatbot will monitor and regulate the online assessment.

The Mumbai Mirror has reported that in the ongoing European Online Chess Championship,

over 80 players have been disqualified for violating fair play rules. Six out of the top 10 players were caught cheating. These suggest that invigilation by a private eye can be quite stringent.

The world will move towards grades, rather than marks.

To avoid scoring not being uniform across exams and across subjects, the system of relative grading (aka Grade Point Average) will be adopted, with no reference to scores. While life is not about the standard distribution curve, GPA will help iron out the troublesome case of marking. Next up, Artificial Intelligence will be used to grade essay questions. Question papers, particularly case studies, will be given in advance to the student either in full or in part. At the time of the exam, the balance question is provided with changed numerals.



For online exams to work, a few roadblocks should be addressed. First is the extensive availability of computers and other hardware for students to use. Also, institutions' servers should be equipped to handle the volume. A secure authentication system in a proctored software is a must to ensure there is no impersonation. Security levels have to be high to disable unauthorized access. Finally, the interface must be kept simple. ■



Education has to be learner-centric. How we are prepared to create a winning formula depends on creating short-term and long-term plans every academic year.

Dr. Vaidhyasubramaniam
Vice-Chancellor, SASTRA University



TAKEAWAYS AND CALL FOR ACTION

Move examinations entirely online.

Get to center-less exams as soon as possible.

Automate evaluation, including for essay type questions using artificial intelligence.

One candidate, one exam paper should be the goal.

Invest in the necessary infrastructure for real-time analytics too. AI can be used to identify cheating.

GETTING HIRED

to several jobs

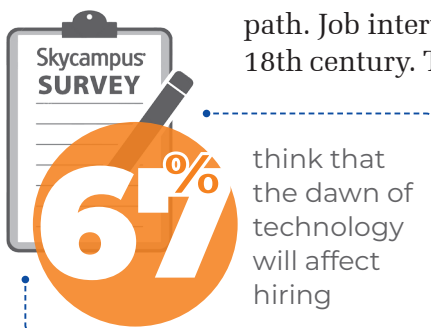
Did you ever get to play a game during a job interview? Were you asked to shoot a 60-second video on Snapchat for a job opportunity? Get ready for these, as job interviews are changing with time.

THE DAYS where someone poured into classified ads, prepared a CV, got interview calls, and flew down for the interview are almost gone. Today, technology is helping HR managers to judge candidates better in terms of attitude, affiliations, proclivities, knowledge, ambitions, and skills. But tomorrow's processes are going to be very different.

PAST

In the 16th century, or thereabout, your birth decided your career path. Job interviews started during the Industrial Revolution of the 18th century. The period saw the invention of locomotives, motors, and steam engines. Candidates were selected based on their productivity, ability to adjust in a workplace, and having a cultural fit. With the advent of college education, things changed.

In 1921, Thomas Alva Edison conducted the first written interview. The question paper was



leaked and published in the New York Times! The telephone opened up the prospects of first-round tele-interviews. In 1995, the first public video conference was held, and it was between North America and Africa. This is now a credible alternative to traditional face-to-face interviewing.

PRESENT

Social media platforms are the new avenues in the interview process. LinkedIn, Youtube, Facebook, Twitter, Snapchat, Instagram, and WhatsApp are employer-friendly. For 100 years, since it began in 1908, the FBI wanted to profile every American citizen on their political affiliations and beliefs. They could not. Mark Zuckerberg cracked that in 5 years flat. With one-third of the world sitting on Facebook, their office knows almost every like and dislike of the Facebooker. Employers hunt social media profiles to look for suitable candidates, and to understand their psychology. Hiring managers use newer methods to evaluate a candidate. Social media presence, Facebook likes to assess personality traits, elements of gaming like brainteasers, or the wasabi waiter, to assess a candidate are the new things.



On their part, employees use these platforms to research for a potential job opportunity, and for knowing the company generally.

With so much technology in the present, just imagine what the future is going to be like.

FUTURE

Students must balance academic talent with work-related skills, as the industry wants them to hit the ground running from day one. Universities must create personal paths for students to acquire skills that can be monetized.



Rahul Sharma

President, Public Sector for India & South Asia, Amazon Internet Services Pvt. Ltd.

Social engagement is going to change. We will soon witness a new paradigm. There are going to be job exchanges, contract skilling, and we need to focus on rapid re-skilling. Processes like design thinking and micro-skilling have to be implemented in the institutions.



Dr. Manish Kumar

Managing Director & Chief Executive Officer, National Skill Development Corporation

The industry would expect new hires to be capable of staying consistently relevant in terms of skills and have the ability to adapt to disruptive changes. Skilling will gain more and more focus. Vocational education is gaining impetus, and colleges must impart such skills that will enable learners to strengthen the economy.



Employers will use technology to right-size by removing the excessive workforce, clubbing job roles, discarding unprofitable business lines, offering voluntary retirement schemes, opting for flexible workers, etc. Besides using new methods for selection, evaluation, and hiring.

Tools like ATS (Application Tracking System) will match skills with experience. These eliminate logistical constraints and save money, time, and resources. Organizations will make use of AI-driven tools during this process.

AI will help in sourcing employees. A smart-watch will screen the candidates and short-list them for an interview. Online tests will be the first filtration point, HR interviews will continue to be telephonic, and group discussions will be via video conferencing. The technical round and the final meeting will again be through the virtual mode. A traditional face-to-face interview, and HR employees descending on colleges for campus placement, will disappear.

A robot, like Sophia, will be used to read and assess the body language and gestures. A voice analytical tool to check the confidence and clarity of the prospective employee will be deployed. A 3D technology for a hologram interview, and finally a data analysis tool to check the competencies and experience, would be the neo normal. To help meet the challenges, collegians will have to take career assessments through psychometric and other aptitude

tests. Employment concepts that are popular internationally like freelancers, contractors, and independent professionals will become relevant. The use of freelancer platforms like Upwork, PeoplePerHour, and Fiverr will come in handy for those who wish to switch between projects and enjoy their independence.

You will see the development of Apps that would indicate the nature of job vacancies within a certain radius of where you stay.

The millennial will continue to expect more than a paycheck from the employer. Gen Z, the generation after the millennial, uses smartphones, has a short attention span, and likes multitasking. It loves independence, experience, and money.

The world may also progressively move to a system of universal basic income (UBI). Here, every citizen of an employable age is given a monthly income to compensate for any shortfall in his guaranteed minimum earning. This idea is an offshoot of the workplace undergoing dramatic changes due to automation and artificial intelligence. It does not mean you should not seek out work; it means in the age of possible massive unemployment, reskilling will be a must.

Globally, we will witness strict regulations from the Governments for data security when it comes to personal data gathered by the companies during the interview process. Amidst all this jazz about the 3Ts – technology, transformation, and tangible skills – organizations will still search for people with those skills which cannot be taught and will stand the test of time. These include skills that are personality-driven and are rooted in ethics, behavior, and a sense of right and wrong. ■

AN ACCOUNTANT AND AN UBER DRIVER

Earlier workers held multiple jobs in the course of a career. Now, workers will have multiple jobs at the same time. You can be an accountant and an Uber driver. This will propel the need for micro-certification. People will look for career longevity by continuously acquiring relevant skills. They will want employers to provide on demand how-to video library like YouTube . Earlier, people went to school, learned a trade, and then spent the rest of their working years applying what they learned. In the future, people will learn, unlearn, relearn, repeat.



TAKEAWAYS AND CALL FOR ACTION

Hiring is going online, and AI is coming.

Encourage students to have a strong social media presence.

Co-ordinate with alumni.

Role of a placement officer is set to change dramatically.

Equip students with a resilient attitude for a world of constant uncertainty.

TREND 9

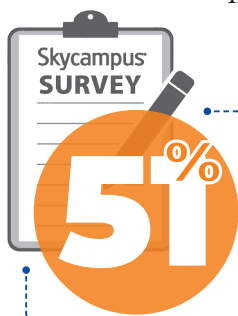
Rise of the MENTOR

Mentorship is many things. For some, it's traditional. Someone senior takes someone junior under their wings. For others, it's more unconventional. Learning might come from many sources. Wisdom show up in unexpected places. The one thing that mentorship has in common for everyone is that it's personal.

– The Acquisition Group

ALL OF US need a mentor on whom we can fall back in moments of self-doubt.

From the starry-eyed student to the jet-setting CEO, from the middle-level corporate professional to the successful sportsman, everyone needs, as Homer said, “a wise and trusted counselor.” The mentor travels with the mentee and is interested in helping the mentee reach his definition of success.



A mentor could be a career advisor, a skills consultant, a role model, psychological support, or all rolled in one. The mentor makes you realize that a career is not a straight line and that you have to be flexible and versatile. He encourages you to develop skills that would help you climb the ladder. He is inspirational

and talks about challenges, roadblocks, and ways he overcame them. And finally, to those starved of oxygen to overcome low confidence, he provides the needed mental support.

Today, a student looks to a mentor for advice: both professional and personal. What courses to select, should he go for a job, or must he pursue higher studies? If it is the former, which industry would be best suited? If it were the latter, which university would be ideal? As bonding happens, the mentor might even check with the mentee on personal problems. The mentor guides, he doesn't decide.

Also, where students are low on motivation, smothered by the mountain of materials they have to study, the mentor can step in to clarify goals, and explain how the contemporary educational program relates to them so that they don't drop out. The mentor also seeks to answer questions like, "When will I ever use these in real life?"

PAST

Let's dip into history to get a perspective of mentors.

In the Mahabharata, Arjuna chose an unarmed Krishna over the mighty Yadava army, and that turned out to be a masterstroke. The former was his mentor, guiding him along at every step with invaluable strategic vision and tactics. He helped identify and clear values. Just before the war, when Arjuna was filled with doubts, Krishna narrated the Gita to help him understand the correct perspective about values. A mentor must protect and nurture the mentee's growth path, as he has a better vision and foresight to judge the long-term impact of today's actions. Another critical aspect was Arjuna intuitively trusted Krishna, even as the latter continued to be confident of Arjuna's abilities.

PRESENT

Because they are people who have been there and seen it, good mentors share life experiences, wisdom, and technical expertise. They get to know, accept, and respect the goals of a mentee as the relationship



Innovations like 3D printing, Robotics, Advanced Transportation Systems, IoT, 5G networks have created a revolution. As educators, everyone needs to be a mentor to the change that creates an ecosystem of innovation and entrepreneurship.

Ramanan Ramanathan

Mission Director, Atal Innovation Mission, NITI Aayog, Government of India





Coaching is not mentoring

Coaches focus on specific tasks, not general goals. Mentoring is a long-term process, with a focus on developing relevant skills for the present and the future.

requires mutual respect, trust, and empathy. In today's VUCA world, everyone needs mentoring: the student transitioning into a professional, the CEO of a start-up, a corporate journeyman, or a rising sports star. Mentorship is a way to absorb the wisdom of those who have been in our shoes, and it takes time. P V Sindhu would not have risen to superstardom but for P Gopichand.

A mentor shares his knowledge, skills, and experiences to help another develop and grow. Some of the most successful people have been mentored. Steve Jobs and Mark Zuckerberg took walks around Palo Alto, discussing how Mark might manage and develop Facebook. Bill Gates, over the years, turned to Warren Buffett for advice. Michelle Robinson was Barack Obama's mentor at the law firm before she married the later-day president. Richard Branson said, 'It's good to have a helping hand at the start. I wouldn't have got anywhere without the mentorship of Sir Freddie Laker.'

A mentor helps a graduating student transition to corporate India by advising him on the right skill-set, helping him pick from a buffet of opportunities, and sounding out on work ethics. A good mentor helps a start-up by providing strategic inputs across various life cycles of a product. In corporates, CEOs find better clarity in achieving targets under the guidance of a mentor. And in sports, mentoring is the extra mile that coaches walk beyond advising how to spin the ball correctly or how to dribble the fastest.

FUTURE

In the years ahead, two forms of online mentoring will emerge: The physical mentor and the virtual mentor. This is in addition to the traditional mentor. A physical mentor is a regular mentor who comes online; call it E-mentoring. Here, you enjoy flexible meeting times, and geography is no longer a challenge. For the career-mentor, it helps him reach a wider audience.

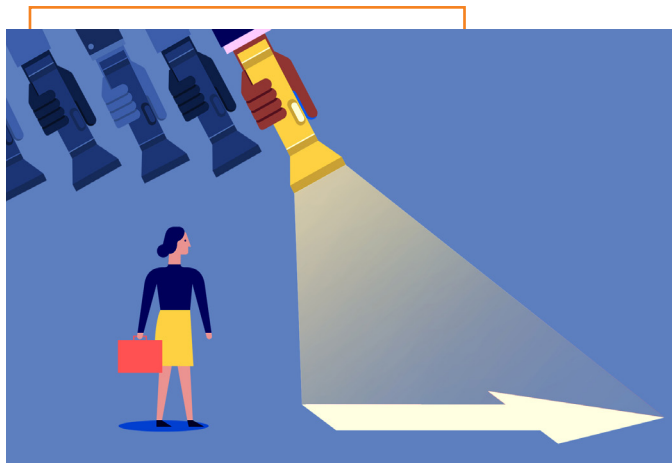
But E-mentoring has its roadblocks. To be successful, even if online, it has to be face-to-face. Email and phone calls limit communication cues, such as body language and facial expressions. A lack of chemistry could happen, which hinders the relationship. And then there are time zone differences. An alternative is to read a book

they wrote, a video they produced, or a podcast they hosted. This way, you can have several mentors, and it would be both comfortable and inexpensive. They are the virtual mentors. You don't see them except through their books, blogs, and vlogs.

The more mentors one has of this form, the more lives one can live. It's fun, useful and free.

There are enough and more indications that soon, fifty percent of those employed will work from home. In the new environment, nurturing, inspiring, and developing employees will be critical, and mentorship is vital. Those who realize this will be able to attract and retain top talent. Others will fall by the wayside. Today, a manager assesses where an employee might go with their careers and provides mentorship accordingly. But as Generation Z navigates very different career paths, they need more options and want to be heavily involved. It is critical to encourage them to define their skill sets and provide them with a variety of ways of getting professional development.

That generation wants to work in a setting where both work and individual passions are respected. In this day and age, a mentor-mentee relationship is ever more critical, due to the increasing complexities of business. ■



WANT TO BE A GREAT MENTOR

- Educate without condescending
- Avoid being judgmental
- Do not try offering advice to convince
- Share life experiences and what has worked for you
- Allow them to find what works for them



TAKEAWAYS AND CALL FOR ACTION

A mentor makes the difference between winning and finishing runner up.

A mentor is neither a teacher nor a coach. He is Guide on the Side.

Build a community of mentors.

Encourage alumni to step in as mentors.

Let mentors take a maximum of five pupils.

WINNING CARDS

1

WINNING UNIVERSITIES



1. The stakeholders will be investors, teachers, parents, students, society, and industry. Hear their voices.
2. Outsource parts of the education value chain to specialized entities. Example: Admissions, Examinations.
3. The entire administration process will be automated.
4. Alumni will provide, among others, financial support to their alma mater.

2



LEARNING

5. At least 25 percent of the courses will be on self-learning mode.
6. Add a self-learning course if ten students show interest.
7. Fifty percent of a blended learning program will have self-learning.
8. Audio, video, and spot Internet search will form 25 percent of classroom activity.
9. A number of teachers will stay on the campus, and 75 percent of their work time will be towards preparation and research.
10. The teacher will be a facilitator, not the traditional guru.
11. Institutions will invest 25 percent of teacher cost for continuous learning and development.

3



RESOURCES

12. Guest faculty from across the globe will handle live webinars.
13. The college will invest heavily in simulation in the form of online laboratory and gamification.
14. Colleges will subscribe to all major global digital libraries.
15. Every student will have the right to order, purchase, or a subscribe for any online services.

4



OUTCOME

16. At least 75 percent of examinations will be online with instant evaluation.
17. The universities are likely to move to grades instead of marks.
18. Link every student to an industry mentor for subject knowledge and a clutch of students to a career mentor.
19. Forty percent of students will become entrepreneurs.
20. Twenty percent of students will join startups.

Tomorrow's TEMPLES of Learning

TODAY, from admission to certification, one person owns the entire value chain. The trend is moving toward partnering with business houses for delivery and placement. Over time, different partners may hold and manage parts of the string, while the university focuses on networking and strategy. In business, this is a typical network organization. In education, this is a long shot.

One thing, however, is sure. Every part of the university value-chain will be automated. The entire administrative process will go through total re-engineering: marketing, admissions, allotment, hostel, class schedules, teaching assignment, examination, placement, post-qualification certification, research, and publications.

A few other things are discernible. For instance, the bricks-and-mortar model is here to stay. We don't think students will always be before their laptops and learn from the confines of their homes. We believe that collective learning is critical to fit oneself into the world. For that to happen, the study environment must celebrate diver-



sity in culture and intelligence. Remember, students learn not only from working together but also from living together. This is where campuses will become crucial. And winning universities will emerge from those who give this the wholehearted thumbs up.

We foresee four-year graduation where the first year is likely to be entirely through MOOC. The next two years will be through blended learning, and the final year will involve part-time work in the industry. Once upon a time, those with knowledge won because knowledge was power, and it took time to build it. In the future, applied knowledge will be power.

In the past, people learned purely for-the-sake-of-knowledge. That slowly changed, and the clamor rose for learning for-the-sake-of-job. The winning universities of the future may cater to both of these while keeping a new abiding idea in mind: delivered by us; just in time. Speed to market will be the driving force. While the good old degree might still be relevant, the move will be towards individual certifications. Learning will primarily be through the digital screen.

CLASS ENVIRONMENT CHANGES

Classrooms will undergo a change in design just as the workplace changed in the last 25 years. The ambience, flexible furniture to suit comfort and efficiency, and smart-boards will be the hygiene factors. No student will walk in with backpacks mounted on his shoulder. Gadgets would replace books and even notebooks. Every desk in a college will have a notepad as classrooms begin to resemble workstations.

There will be clusters or hubs for people to group together and learn. Maybe it would resonate like a coffee shop. The entire campus, including the hostel, would have gone smart, and students tracked 24/7. The library would have a hub with augmented reality studios and simulation spaces. Not just classroom learning, even open-air interaction could be preferred, more so in the evening. This would create a beautiful place of living, teaching, and learning.

Universities will be affordable and accessible to all. Universities of tomorrow will see a rise in costs,



Some essence of the classroom will be lost in online learning. However, user-friendly and low-cost technology will help in a big way, although cybersecurity will be a challenge. Despite all that, we need to re-invent ourselves.

Jayesh Ranjan

IAS, Principal Secretary – IT,
Government of Telangana





ZOMBIE EDUCATION?

All that you need are a smartphone, an Internet connection, and a credit card for admission into a college. You Google the top colleges, enroll for one by providing the scanned copies of transcripts and credentials, pay tuition fees by credit card, attend virtual learning classes, get mentored and coached through Zoom, attend online exams, and finally obtain convocation certificates by email.

style of lecturing, and examination patterns. LMS will schedule the classes by running algorithms based on Quantitative Technique principles of assignment and transportation.

PARTNERSHIPS

Academia will partner with digital technology companies to create content for their courses. They will also partner with industries to obtain a competitive advantage in the marketplace.

The winners will emerge from those who seek support from alumni, philanthropists, foundations, and corporations. The government will continue to establish and run a few major institutions. Universities will reduce carbon footprint, the campus will be green certified, and become bicycle-friendly.

Many institutions will operate like corporations, exploiting niche markets, or working in other parts of the education chain. Universities will develop new models that will integrate academic changes and teaching models. In their hunt for revenue, universities will increase their menu of services and look to corporates to outsource key areas of research.

Corporate buzzwords like operational efficiency, administrative productivity, and cost cutting will become normal even as universities seek to enhance the quality of its end product viz., teaching and research. The ratio of administrative and support staff to teaching staff will change. Universities will want to track their contribution to the wealth of the nation.

ADMINISTRATION GOES HI-TECH

The government has aided the public education system in rural India. The private education system, more prevalent in aspirational urban India, is earmarked by modern infrastructure, state-of-the-art facilities, and affordability of the students to have better amenities in learning. All this is set to change. The government may convert corporation schools into centers of excellence, either on its own or with private players. Philanthropists and corporate India will work in tandem to take primary education to the grassroots level in a big way.

Social media will be the biggest space for targeted advertising. Admissions will be driven by standard entrance tests across the streams of arts, humanities, science, medicine, or other professional and vocational courses. Institutions are in the lookout of technology-driven solutions to ease the tests.

Every college will have a platform for online application, releasing hall tickets by email and mobile, and conducting a test online through a monitored mechanism. Counseling, as is generally understood, will be part and parcel of the administrative process. Hostelites will be subjected to significant regimentation and tracking because the college has a responsibility to the parents. The parents will receive regular updates and news on their food, health, attendance, study schedule, sports curriculum, and progress.

Colleges will recruit tech-savvy people to embed technology in all spheres of education. Sales and marketing of an educational product, whether we like or not, will get accentuated. Some argue that strategies will take the form of how FMCG companies battle out in the marketplace, including guerrilla-type warfare.

The war will be to engage in the broader student community. To break down course curriculum to smaller parts and assigning certification to each will be the norm. Tomorrow's winners will emerge from those who can master this and have it as their unique selling proposition.

These are going to be exciting times. Plan yourself to be there. ■



Educational institutions should collaborate on a global level to provide worldwide content and exposure to students. This would mean taking a pledge to invest in technology and to give access for students, teachers, and professors in the same equitable manner”.

N Lakshmi Narayanan

Chairman, ICT Academy



A SNAPSHOT OF KEY IDEAS IN RESPECT OF THE NINE MEGA TRENDS

WHAT'S IT

01	TEACHER-STUDENT		Gurukula, Teacher Facilitator	Collaborative Learning
02	SELF LEARNING		Self-Study	Collaborative-Study
03	BLENDED LEARNING		Face to Face	Online Learning
04	ONLINE LIBRARIES		Cloud-based	Universal Library
05	ONLINE LABS		Cyberspace	Simulators
06	ONLINE WEBINARS		Borderless	Video-Conference
07	INTERNET EXAMS		Online	Anywhere, Anytime Centerless
08	JOB INTERVIEWS		Automated	Online
09	MENTOR		Coach vs. Mentor	All need Mentoring

SNAPSHOT

WHY IS IT

Artificial Intelligence

Competency-based Learning

Gen. I vs Millennial

Heterogenous Classroom

Easy Availability

At your Pace

Smartphone Video-conference

Industry-Academia Gap

Practical Orientation

24/7

Secular Access

Easy Storage

Global Access

Lease

Ethical Dilemmas

Global Access

Best in Class

It's possible!

Admin Hassles

Real Estate

Valuation Efficiency

Logistics

Disloyalty

Artificial Intelligence

VUCA World

Lord Krishna

Polestar

WHAT SHOULD I DO

Cloud-based Platform

Open Innovation

Gamification

Self Regulation

Self Motivation

Freeze Learning

Flipped Classes

Curate

Khan Academy

Copyright

Paid vs. Unpaid

Invest

Espouse

Google Classroom

Desi Platforms

Automate

Outsource

OGPA

Cultural Fit

Gig Economy

Learn to Learn

Physical Mentor

Virtual Mentor

Gen I

EMERGING TRENDS

– SKYCAMPUS SURVEY RESULT

STUDENT-TEACHER RELATIONSHIP

90% believe that a teacher's role has shifted from a Sage on Stage to a Guide on Side

BLENDED LEARNING

65% believe that more than 40% of class timing should be on videos, simulations, and audio

86% think that blended learning will help reduce the gap between industry expectations and academic offerings

ONLINE WEBINARS

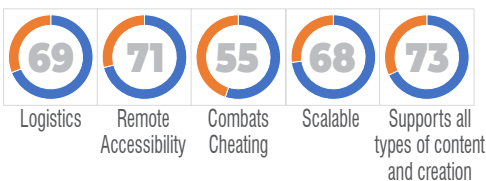
82% are keen that institutions should run online webcasts, webinars, and webconferences

INTERNET EXAMS

51% people think there is a more than 60% probability of taking exams online

What are the benefits of Online Examinations

Agree (Percentage)



SELF-LEARNING

75% think that their institutions more often recommend self-learning

36% think that at least 25 courses should be offered totally on self-learning

ONLINE LIBRARIES

71% believe that we must promote online library considerably

ONLINE LABS

64% believe online labs will be very effective for students to understand the subject

JOB INTERVIEWS

67% think that the dawn of technology will affect hiring

MENTOR

51% agree does a student need a Mentor from industry to guide him continuously?



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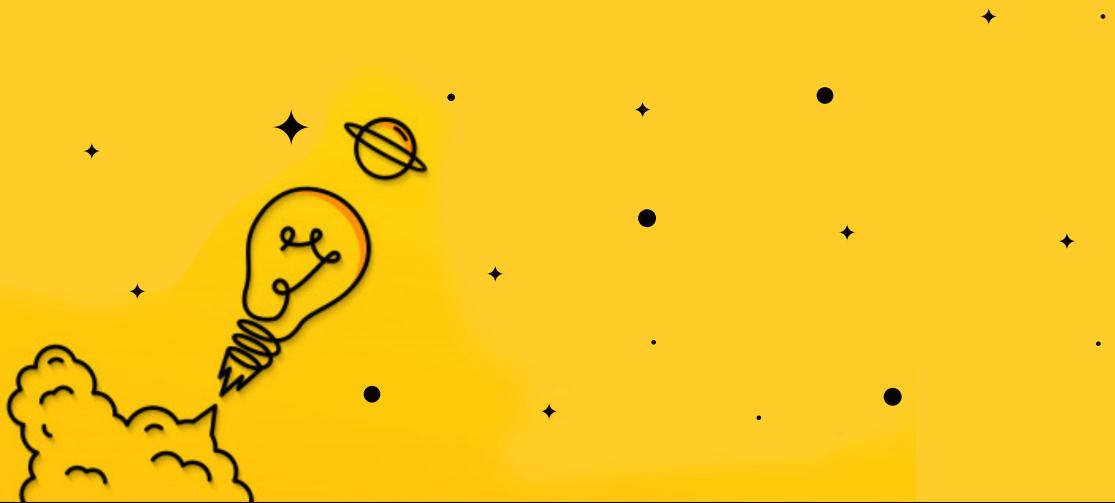
BOOKS

INTERNATIONAL
RESEARCH
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