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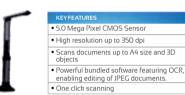
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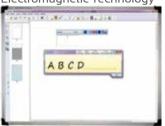


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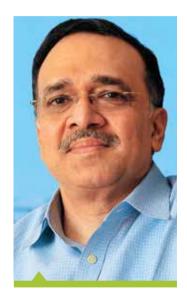
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FOREWORD



"Are these tools minor enhancers or do they have the ability to truly transform course delivery?"

Are we paying enough attention?

n all the things we have been discussing at *EDU* internally as well as with the community, whether it be challenges around faculty, student engagement or course delivery methods, there are a bunch of futuristic terms that keep coming up: 'interactive boards', 'smart classrooms', 'courseware blogs', 'classrooms beyond classrooms'. I've often wondered if this is another passing trend, an uninformed exuberance around 'cool gadgets' which aren't much more than glorified playthings. Do they really do much for the cause of education?

Haven't innovations in pedagogical methods (many pathbreaking ones being strictly non-technological) been taking place since the beginning of teaching itself? Are these tools minor enhancers or do they have the ability to truly transform course delivery?

EDU decided to take on a rigorous inquiry to see what's really happening. In our cover story, we present to you what we found: six real, pressing concerns for all faculty members which different technologies address in varying degrees.

There are of course challenges around implementing these in our classrooms. Stories of expensive, mammoth implementation projects which have been disbanded midway add further to one's apprehensions.

The solution really lies in having a strong leader and evangelist; someone with the ability to convert sceptics, overcome constraints, and most importantly the vision to see the possibilities that these technological aids offer in transforming education.

In our conversation with Lynette Whitfield, Director, Education Industry Solutions & Market Development, Polycom, we discover more examples of what technology is making possible and the tremendous potential in Indian higher education that still remains unexploited.

Instead of writing yet another piece glorifying technology and these tools in particular, we list out examples and ways to select the tools which would best suit your specific needs.

I also have a question, once you've read this cover story: Has this feature made you think differently or prompted you to act on something you'd been considering for a while? Do write in to let us know.

Dr Pramath Raj Sinha pramath@edu-leaders.com

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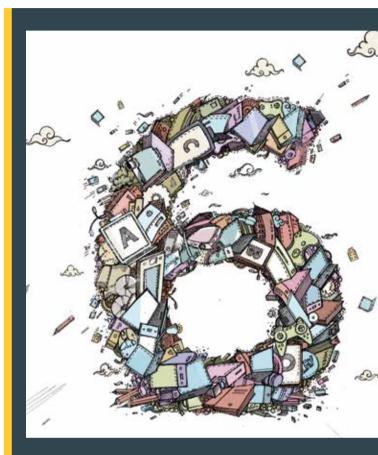


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What used to be earlier homework, now happens in the class"

-Lynnette Whitfield Director, Education Industry Solutions & Market Development, Polycom





CORRIGENDUM

September 2012: Volume 3, Issue 10

Last issue of Timeout section in *EDU* page 59 had erroneously printed the price of Samsung Galaxy Note 800 as Rs 32,961 the correct price is Rs 39,990. On the same page the headline for the story on cameras was erroneously printed as State of the 3D market, while the article was on cameras. We regret these errors

GLOBAL PERSPECTIVE

Find out what's currently happening in institutions around the world. The Chronicle of Higher Education shares its perspectives with EDU

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By Angela Chen

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By Anna Nemtsova



12 6 Reasons to Use Interactive Tools

One of the major challenges faced by institutes today is how to keep the 'digital natives' engaged and interested in the classroom. A solution to this is the usage of interactive technology tools. Find out more about the various technology tools available and being used in higher education

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Indian economist who played an important role in India's planned development

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TPDATES FROM THE WORLD OF HIGHER EDUCATION

05 TAG 05 NOBEL 06 FUNDING 06 COURSE 07 RANK

07 SCHEME & MORE



Businesses to Run Tech Schools Now

Business houses with ₹100-crore turnover can now admit double the number of students and start a single branch, or theme institute, of their choice

DECISION All India Council for Technical Education (AICTE) has decided to allow business houses with ₹100-crore turnover to set up technical institutions of their own. According to a report, such institutions will be allowed to admit double the number of students allowed at regular institutions, and would be able to start a single branch or theme institute of their choice, according to the AICTE's notification inviting applications to start new institutes for the academic year, 2013 to 2014.

The report has quoted AICTE chairman SS Mantha as saying, "We want to bring in the best practices of industry and want them to participate in the higher and technical education sector. Accordingly, a private limited or public limited company or industry, with a turnover of ₹100 crore in the last three years, will now be eligible to apply to start a new institute."

Such institutions can teach any technical discipline and can offer undergraduate, postgraduate or diploma courses, informs the report.



IIT KHARAGPUR GETS NEW DIRECTOR

Prof Sankar Kumar Som has been appointed the officiating director of IIT Kharagpur. Som had joined the institute in 1976 as a faculty member in the mechanical engineering department and then became the dean of undergraduate studies of IIT-KGP. He will now be the officiating director and the dean of undergraduate studies.

Soon after taking over, Som said, "IIT Kharagpur has a vision 2020 plan. Our aim is to become one of the top 20 institutions in the world by 2020 and I will work towards achieving that goal."

AMU PRO-VC APPOINTED

Brigadier (Retd) Syed Ahmad Ali was named the Pro Vice Chancellor of Aligarh Muslim University (AMU). The announcement was made by Vice Chancellor Lt Gen (Retd) Zameer Uddin Shah. Brigadier Ali served in the Kumaon Regiment and won Sena Medal for his role in the 1999 Kargil war.

Earlier, the Vice Chancellor had appointed Group Captain Shah Rukh Shamshad as the Registrar. Shamshad began his career in the Indian Air Force in 1980. From June 2009 to August 2011, he was with the National Defence Academy. The Vice Chancellor himself fought in the 1971 India-Pakistan war, winning the Param Vishisht Seva Medal.

MITRA IS DIRECTOR IIFT

Dr Surajit Mitra has been appointed as the Director of India Institute of Foreign Trade (IIFT). Dr Mitra takes charge from KT Chacko. An IAS officer of 1977 batch from Assam-Meghalaya cadre, Dr Mitra has vast experience of working in the central ministries of commerce, industries, tourism, rural development, communication, defence, home, finance and has served the Government of Assam in various capacities.

Worthy to Get 'Innovation' Tag

UGC will grant innovative university tag to deserving universities. Government varsities will also be eligible to apply for the scheme

TAG University Grants Commission (UGC) is likely to launch a scheme for conferring the tag of "innovation universities" and "innovation centres" to worthy institutes. According to plan, the scheme will fund existing central and state universities as well as the best of deemed-to-be universities to upgrade to an innovation university or centre status.

According to sources, government varsities will also be eligible for an innovative university tag. However, no grants or funding will be released to selffinancing deemed to-be-universities. The UGC intends to extend the scheme to colleges.

The Universities of Innovation Bill aims at establishing varsities that will encourage superlative academic

quality and research output. These were to be set up either by the government, private entities or through public private partnerships and offer unmatched academic freedom.

The Bill provides for upgradation of universities/ institutes to the status of innovation universities, provided they meet certain criteria—a suggestion made by the Planning Commission. It promises a flexible frame-

work allowing freedom to appoint a foreign academician as a vice chancellor, invite a promising student to join as faculty, allow varsities to device their



Innovative: UCG scheme to boost superlative research and academic output by varsities

> own merit-based admission process, individual quality standards free from UGC, and to keep the varsity out of CAG's ambit.

And the Nobel Prize for 2012 Goes to...

practice of market design".



NOBEL Nobel Prize in Literature has been awarded to Mo Yan, a Chinese writer "who with hallucinatory realism merges folk tales, history and the contemporary". Robert J Lefkowitz and Brian K Kobilka jointly received the Nobel Prize in Chemistry for their work on G proteincoupled receptors. Serge Haroche of the Collège de France and Ecole Normale Supérieure, in Paris, France, and David J Wineland of National Institute of Standards and Technology and the University of Colorado at Boulder have been awarded the Nobel

Prize in Physics, John B Gurdon of the University of Cambridge and Shinya Yamanaka of Kyoto University have been awarded the Nobel Prize in Physiology or Medicine. The Nobel Peace Prize 2012 has been awarded to European Union. The Sveriges Riksbank Prize in Economic Sciences has been awarded jointly to Alvin E Roth and Lloyd S Shapley "for the theory of stable allocations and

individuals have been awarded the Nobel Prize individuals have been awarded the Nobel Prize in Chemistry

Japan Commits Rs 313.62 cr to IIT-Hyderabad

Part of official development assistance (ODA) loan package, the financial assistance will be used to develop the permanent campus of the institute at Kandi. Andhra Pradesh

FUNDING Japan has committed to provide ₹313.62 crore for the development of Indian Institute of Technology, Hyderabad campus. In this connection, Indian government has signed an agreement with Japan for 132.645 billion Yen (₹7,802.17 crore) as part of the official development assistance (ODA) loan package to fund four development projects in India.

These four projects include development of the Indian Institute of Technology (Hyderabad) campus (Rs 313.62 crore), Tamil Nadu transmission system improvement project (Rs 3,572.73 crore), Rajasthan rural water supply and fluorosis mitigation project (Rs 2,211.52

crore), and Delhi water supply improvement project (Rs 1,704.30) crore.

The Indian Institute of Tech-

nology Hyderabad is a public university located in Medak district of Andhra Pradesh. IIT Hyderabad is presently running from a temporary campus located at Ordnance Factory Medak's estate in Yeddumailaram village, while the permanent campus in Kandi is being constructed.

It is one of the eight new Indian Institutes of Technology (IITs) established by



Yen for Development: Japan has committed to provide ₹313.62 crore for the development of IIT-Hyderabad

the Ministry of Human Resource Development, Government of India under the Institutes of Technology (Amendment) Act, 2011 which declares these eight IITs as well as the conversion of Institute of Technology, Banaras Hindu University to IIT. The Act was passed in the Lok Sabha on March 24, 2011 and by the Rajya Sabha on April 30, 2012.

UPDATE

Master of Law is Now of One-year Duration

COURSE UGC had set up an expert committee under NR Madhava Menon, founding Vice Chancellor of National Law School of India University, Bangalore to examine the proposal for changing the education of LLM. The committee endorsed the move and recently submitted its report to the UGC The masters degree programme in law (LLM) will now be of one-year duration instead of two years. The programme aims at creating researchers and teachers as our country needs more of them. According to reports, University Grants Commission has given its nod in this regard. Presently, a student has to spend at least seven to eight years after intermediate to gain a masters degree. The committee endorsed the move and recently submitted



its report to the UGC.

The committee was set up after the HRD Ministry had backed recommendations made by the HRD Ministry's round table on legal education

in 2009. Only India, Bangladesh and Pakistan impart twoyear LLM. A senior UGC official said the aim behind the move is to stop best legal minds from going abroad to pursue similar programme in less time and retain the best talents in the field.

IIM-A among Top Five B-Schools

The Economist has ranked the premier B-School among the best five in the Asia-Australasia region, moving it up from the ninth position it held last year

RANK The premier B-school of the country, IIM-A, has made it to the top five B-schools in *The Economist* ranking in the Asia-Australasia region, moving up from its previous ninth position. The weekly newspaper has ranked the institute as one of the best B-schools in the region in its full-time MBA ranking 2012 list. Besides this, IIM-A has also been ranked 56th in the global list, a jump from the previous 78th

position, and remains the only B-school from the subcontinent to make it to the ranking, which includes 100 institutes from across the world.

However, significantly IIM-A has been given a score of '0' (out of 100) in the international diversity score, meaning no one from outside the region studies

full-time course at the institute.

According to *The Economist* report, "The Indian Institute of Management at Ahmedabad is reckoned to be the leading business school in the subcontinent and also the toughest in the world to get into (over 700 people apply for every place). It has close links with industry and with state and national authorities and is increasingly international in attitude."

The report credited the Indian government, the government of Gujarat, and the Indian industry and business as the key players in the establishment of the institute in 1961. "The IIM has a good research base and an active involvement in management development," it added.



CSIR Fellowship for Scientists over 70

Offers active septuagenarian scientists Rs 20 lakh for five years for guidance and research

SCHEME Council of Scientific and Industrial Research (CSIR) announced a research fellowships for scientists aged above 70. The new scheme was announced by CSIR Director General Samir K Brahmachari at a function to celebrate the 70th foundation day of the Council in New Delhi. Under the scheme—CSIR@70—scientists would be given Rs 20 lakh a year for five years, if they remain active, guide students and publish research papers. They should have also won the Shanti Swarup Bhatnagar award.



Addressing a gathering of scientists, CSIR Director-General Brahmachari said many scientists continued to be active even after 70 and "we want to take advantage of services of such people." The fellowships would be available to those who are not getting any support. Currently, there may be only five to 10 scientists eligible for the scheme.

voices

"Bringing uniformity in agriculture education is the first priority.



Though there is a model Act of ICAR, it is not being imple-

mented across the country. Hence, the need for accreditation and upgradation of colleges and universities"—CD MAYEE,
Member, ICAR Committee & former chairman, Agriculture
Scientists Recruitment Board

"Indian universities, which failed to make it to the top 200 World



University Rankings, should draw inspiration from ancient

academies like
Nalanda to be
recognised globally.
The time is long
overdue for our
advanced education to
have the same high
ranking"

— LORD SWARAJ PAUL, Chancellor of Wolverhampton and Westminster Universities

"Educational degrees have utter irrelevance to a student's



professional and personal life. Education should be a

highly individualised process"
— CT RAVI,
Minister for Higher Education
Government of Karnataka



MBA Education in India: Shape Up or Ship Out

BA seats in India grew almost four-fold—from 94,704 in 2006-07 to 3,52,571 in 2011-12—resulting in a five-year compounded annual growth rate of 30 per cent. Unfortunately, job opportunities for MBAs have not grown in the same proportion. The MBA capacity in the country was built based on the projection of a 9 to 10 per cent economic growth rate. The dipping of the growth rate to half of what was projected is having a catastrophic effect on MBA programmes.

A report in *Times of India* recently said that 225 B-schools have closed down in the last two years. To add fuel to the fire, a recent MBAUniverse.com-MeriTrac employability study, which covered 2,264 MBAs from 29 cities and 100 B-Schools (beyond the Top 25), reported that only 21 per cent are employable. This has created further panic among the Tier II and Tier III B-schools.

Most analysts look at this as a shake-out phase and believe that as the industry matures, the weaker ones get eliminated. One could also look at this as a business cycle. The downward trend will get reversed once the economic growth

picks up. Hence they advise these institutes to hang on till the industry starts looking up.

Others see it as a wake-up call for unscrupulous management, incompetent faculty and lacklustre students. Such institutions are advised to improve the infrastructure, train their faculty and work on industry linkages. They are also advised to spend money on research and knowledge creation, as well as pay their faculty well in order to attract good teachers. Basically, they are asked to benchmark themselves against the top B-schools to improve their performance.

Some point to the yawning gaps along many fronts—industry expectations vis-a-vis products from institutes; student expectations versus what colleges offer; faculty expectations and what managements offer; management expectations and government regulations; and finally, the parents' expectations and the performance of the students. It is not going to be easy to fill these gaps.

Some criticise the excessive placement orientation in management colleges. Since students pay a heavy fee, they tend to demand placements without laying due emphasis on their studies. Managements too tend to over-report placement records to attract more students.

Are these applicable to only Tier-II and Tier-III institutions? Not really. Even the top 25 schools don't get the best students anymore; we just get the best *coached* students. These are youngsters who have mastered the art of shortcuts to crack the CAT. (They have created a database of all question papers set by faculty members in their lifetimes, and predict the question paper using sophisticated algorithms and stochastic models. They have the database of all projects and assignments submitted by their seniors. For writing assignments, they only need to change the name and roll number. A professor in one of the IIMs used to receive only hand-written assignments to ensure that some learning could take place. Some sophisticated IT guys break into the secure server to change their grades.) Obviously, a lot of thinking is going on, but all in the wrong direction.

They fight to get into the placement committees so that they can land good jobs by impressing the executives coming for placements. After completing the course, they join high-paying jobs and continue to use shortcuts to show results—and then get thrown out of those jobs. Then they all become consultants or management teachers in Tier II and Tier III institutions—and spoil them too!

God save the country from the IIMs and IITs, which are responsible for creating a culture of achievement by any means necessary. Parents who often could not get into IIMs and IITs also put pressure on their children to meet their unfulfilled dreams. I believe such people should also rethink their priorities—is there no life or opportunities outside of these so-called elitist institutions? Why this *varna* system in education too?

The Tier I schools cannot sit back and relax either, as competition is coming from foreign universities that are setting up shop in India. The MBA market in the West is itself on the downhill path, and that drives them to look for greener pastures. Online education is sure to penetrate from the West and pose a serious threat to Indian MBAs. After all, we teach western concepts, using western textbooks and western case studies. When the West itself sets foot in India, we would become obsolete. So, what ails management education in India and abroad? I have the following points to share:

1. I want to question the fundamental assumption that our role is to make our students employable. Traditionally, education gave a set of theories and developed analytical skills in students to look at business problems objectively. When they took up jobs, they were able to pick up industry-specific and company-specific knowledge. It is not possible

The West itself is looking to the East to improve management education. As opposed to goal orientation, we should teach role orientation

to meet the needs of different industries unless we start sectoral programmes.

- 2. We have all begun to think with a market orientation. Education cannot and should not become market-oriented. Instead, we should be obsessed with producing products that surpass industry expectations. Our students should be capable of questioning industry practices.
- 3. Industry, too, is getting smart. For the cost of employing an MBA, they can hire two BBAs or BComs or BAs, who are no inferior to an MBA. After a few years of experience, these graduates-would go for an Executive MBA (either part-time or full-time). The future is a BBA and Executive MBA.
- 4. What we teach is also responsible for the decline of the MBA. The western model of money by any means, aggressive goal orientation and self-centredness are blamed for the decline of their economy. The West itself is looking to the East to improve management education. As opposed to goal orientation, we should teach role orientation; instead of creating exclusivity, we should build inclusivity. If we don't, the top schools in India will also soon be scrambling for students.
- 5. New areas, such as viscom, multimedia, film production, design and e-commerce are creating better job opportunities. Consequently, the MBA is losing out. There was a time when the best brains went to do law or economics. Then it was the turn of engineering and then MBAs. But now the MBA too has gone past its prime.
- 6. A vanilla MBA will be dead in the near future. We need to offer MBAs in construction management, public health management, retail management, etc. Late Prof NS Ramaswamy, the founder-director of IIM Bangalore, was a visionary who started sectoral specialisations. Unfortunately, somewhere down the line the institution lost track and merged with the general MBA crowd.

AUTHOR'S BIO

Dr MJ Xavier, Director of IIM Ranchi, has more than 25 years of professional experience in teaching, research and consultancy. His areas of interest include Marketing Research, Data Mining and e-Governance. He has authored three books and published more than 100 articles in journals and magazines in India and abroad

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Cybernetyx MyCloud functionality, enables users to access "On-demand" content access.

Resource library spanning thousands of images diagrams, 3-D models and simulations.

Explore more. Speak to us: +91 - (0120) 43 59 466, or drop us an email: info@cybernetyx.com





Augmented classroom evaluation system

Evaluate students 10x faster in a class by automating the evaluation process.

Student reports can be generated to facilitate better learning through software guidance





Bidirectional student response system

Enables complete classroom participation

Empowers bidirectional communication between

student and teacher unlike classes.

Advanced user interface with support for subjective answers.

Cybernetyx Interaktiv UG, Hefehof 23, 31785 Hameln, Germany. Ph. +49(0)162 5178 267 India Operations: G-312, Sec-63, NOIDA 201 301, NCR, India. Ph. +91 0120 435 9466

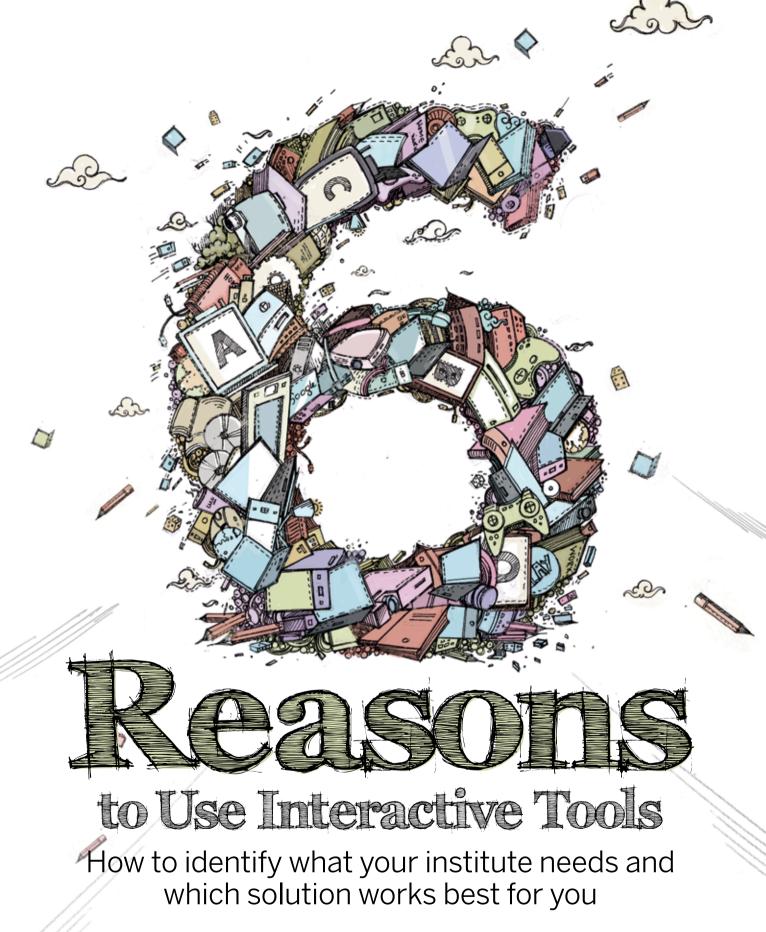


ILLUSTRATION BY SHIGIL NARAYANAN & DESIGN BY RAJ VERMA



he average college going student today is someone who owns a camera phone, is familiar with the internet, has an email account, a

facebook account, watches videos online, probably owns a laptop and has access to iPad or a similar device.

This student is a so called 'digital native' who has grown up with technology and is more at ease with all technology tools than an average educator. Teaching this 'digital native' and keeping her/him engaged and interested in what is happening in the classroom is one of the major challenges that institutions face.

Using interactive tech tools in the classroom is one important way in which educators can speak in the language of these

digital natives and connect with them. As Tarun Jain says "These tools are relevant for all areas as today the level of comprehension is varying with individual member and the level of conceptualisation differs."

As the institution head, it is up to you to make these technology resources available to your teachers or introduce them to these tools and let them decide whether they want to use them and how they want to use them.

However, the world of technology tools in the education space can be overwhelming and leave you confused on how to go about choosing the right tool to meet your needs. The first step thus is to define your need or the reason.

EDU spoke to a few technology experts to get a list of needs that can be fulfilled using some of the interactive technology tools:



Disseminating accurate information and knowledge in an interesting way

ince there are various channels of information available today, educators are extra careful that they deliver accurate information in a format that helps make sense of the overload of information. In the traditional format, instructors used to prepare curricular notes at the start of the course for keeping the content structured. Today, online course platforms like Moodle and Blackboard help educators structure their course content. Tools like Interactive Whiteboards and SMART Boards help not just with accuracy in disseminating information, but also make a lecture interesting. The chalk and board

style of classroom is on its way out. With the Interactive Whiteboards offer a range of options to make the lecture interesting. You can integrate videos and images and even come up with interesting diagrams to help you explain complex topics.

Tools

Hardware tools like Projectors, Interactive boards/devices and tablets, Interactive Panels and Visual Presenters.

Software that can support the use of these tools include content for teaching, working in a collaborative way, recording and saving the work.

Interactive Whiteboards and Interactive flat panels Hitachi's IWB (StarBoard FX 79E, FX 89WE-for bigger classrooms) and its panel Hitachi T17SXL & Hitachi T19WXL. SMART Board Interactive Whiteboards and SMART Board 8000 series interactive flat panels.

Most IWB providers also offer a software solution to go with it for instance Hitachi's Starboard Software comes long with its IWB. Software solutions like Easiteach from Panasonic with other. IWBs are also available from Panasonic, Dell and Samsung. Pearson's DigiClass Presentation tools for creative presenta-

tions like SMART Podium iteractive pen display and Adobe Presenter are also available Projectors are also provided by a variety of companies including Hitachi and BenQ. Interactive Tablets are also provided by various companies including Hitachi which offers Hitachi WT-1. These tablets can be used to write on the board by individual students from their seats instead of walking over to the board.

Examples

Promethean's Interactive Whiteboards with its interactive software, projector and a fully-functional mouse gives the teachers full control over content.



"We believe that creativity should drive education. To get the right tool for your institution you could consider what you would like to achieve with the tool in terms of creativity. You could either use it to create content, present content or distribute content. Interactive tools could be used to create knowledge repository as Open Classrooms will soon become the norm"

-Sunil PP, Adobe



Taking care of distance and enabling anytime anywhere learning

nteractive Whiteboards can also be used to record lessons. These can then be used by the instructor to edit them to improve future lectures and also use them to help absent students review them later. One can also use these IWBs to simultaneouslydeliver lectures online for students logging in from a remote location. There are various high-quality videoconferencing facilities that can help bridge the distance. Teachers today are also using various lecture capture solutions like Camtasia, Coursecasting and Adobe Presenter to record lectures and later upload these videos to video sharing

sites like iTunesU, Youtube, Jove, Vimeo and others.

Tools

Lecturecast of Edmodo, Jing, and Screencast-video tape revisions—can also be used to offer feedback.

- Polycom's Unified Communication
- Verizon's Voice and Messaging
- HCL Learning's SMS

Pearson's Think-Tank can help students access the school library from anywhere:

Pearson's e-books platform can help you load the entire course on one device, rather than lugging books. Planning to embed other interactive and learning tools along with these text books, so that both faculty and students there's context and more like an ebook plus.

Smart Class solutions: Videos etc mapped to different universities that faculty can use for teaching in the classroom.

Pearson's Mylabs offer e-books, interactive tools and also a chance to finish project work online. The Dashboard works as a feedback system that gives quick analytical tools. Who gets it, and who doesn't is purely decided by numbers or cases.

2-3 standard tools—videos or animations. Case study videos. Most learning management tools will have some kind of a collaborative tool.

Most tools are available. Sophia is using my Psych lab.

Examples

Professor Catheryn Cheal at Oakland University, Michigan, sends her students to five specific campus locations with the 'SCVNGR' app on their smartphones. They answer questions about visual rhetorical space into their phone at each site. Once back in the classroom, they have the background to write their essays in a learning management system.

Open Course Provides "Wow" Experience

t SICSR, we have to come up with strategies on the usage of these technology tools especially on open course to provide a wow experience to our students. Interaction and collaboration tools are need of the hour especially in terms of curriculum delivery and administration for the students. Today, forums have to be operated to meet student requirements. These tools are not just about delivering education but also building one. Gone are the days of one-on-one teaching. We now have to have groups, common platforms for students' to interact. Learn and discuss. This is possible only with online and personal tools like Google Docs and personal tabs. Here are some of the interactive tools

• Google Calendar-Event Scheduling

other institutions:

we use in our institution that can be equally useful for



—**Lalit Kathpalia**Director, SICSR

Big Blue Button—Web Conferencing Google Groups—Private Social Networking Platforms

- Red Mine-Project Management. We have configured this for Project Management @ SICSR
- GoogleDocs, MediaWiki-Collaborative writing, Document Sharing wikis
- ADOBE Acrobat –
 Document Publishing
- Mediawiki-which provides core content management and integrates with many other tools via extensions (same engine used by Wikipedia). We have created SICSRWiki
- MOODLE-LMS
- Chat-Drupal provided client & Google Chat LaResume X-SICSR Placements software gitHub-For sharing code repositories Online and Version control software.



Creating a **learner centred environment** and addressing different learning styles and pace

oday education is all about creating an environment that focusses on the needs of the students. It's a known fact that all learners have different learning styles and pace. The best educators today ensure that even in large class set-ups the needs of the individual learner is met with. Tools like clickers and automated response sys-

tems help the instructor find out if a particular concept is clear to a majority of students. The instructor can pose a question verbally or in a presentation and a Clicker that uses remote sensing technology can be used by a student to give the answer. The answers can be immediately recorded and even presented in a visual format for the instructor

or class to review. Even the most introverted of students can respond to a particular question while sitting on his seat with merely a click. This helps the instructor draw an accurate picture of whether his lecture is making sense to everyone in the classroom. Outside the classroom there are various polling software like Survey Monkey and Fluid Sur-

veys to help get feedback and improve a lecture.

Creating a learner centred environment also means that the lecture format and delivery should take care of various needs. For instance, some students learn better with images or concept maps. Flickr and Wikimedia Commons can be used in various creative ways to help students connect with the subject through interesting images. MERLOT (Multimedia Educational Resource for Learning and Online Teaching) is an

interesting online educational portal than has learning material uploaded by various faculty to address diverse learning styles in practically all disciplines. Some others learn better with simulations or online games.

Tools

SMART has response systems that endows teachers with the ability to instantly assess student learning through formative and summative assessments

- polleverywhere.com
- VOKI
- Flickr
- MERLOT
- Wikimedia Commons
- Adobe

Examples

Teachscape's Classroom Walkthrough program allows teachers to collect data and analysis on student knowledge comprehension using their mobile devices.

Challenges in Implementation and How to Overcome Them

Adil Jahangir Mirza, SMART Technologies

Teacher training gap is a major road-block in the mass adoption of technology in classrooms. For optimal utilisation of technology in classrooms it is critical that the teacher should be comfortable with the teaching tools at his disposal. Engaging students is also very crucial for drawing maximum benefit from technology tools. Thus, adopting the right software-hardware combination needs to be used for undivided attention from the student's end. The software should enable teacher the flexibility to develop or modify the lesson content as per the curriculum and the learning needs of the students.

Tarun Jain, Hitachi India

Availability of resource—like power/financial capability/student PC at home for review of the class work.

Attitude of Teachers/Presenters—Should be willing to modify the subject for every class rather than working on same for a year. Means—the depth of syllabus should not be only oriented to scoring marks in exams, but to give the student the entire knowledge up to date. For this teachers have to do a lot of home work in terms of understanding the level of the class, current developments in the subject and connect them with syllabus, deliver the preparation in class and follow up with notes/check on comprehension.

K Srinivas, Pearson

India is a leading user of social media platforms like Facebook and Linkedin, leading user of emails and net surfring. So, the notion that broadband is a problem or power supply is a problem is a myth. More important is—what

is the willingness to embrace change? You can have the best of technologies made available to you, but if you are not going to use it, then you can't forcibly bring change. There is a sort of generation gap from a technology usage perspective between the faculty community and the student community. With time more and more teachers will use technology as a part of delivering lecture. They will no longer need to first be trained.

Sunil PP, Adobe

Perceived notions that tools like Adobe are too expensive have to be dispelled. The no one challenge in greater reason is that people don't value buying licence. A large number of people are using our product and not paying for it. People don't want to buy licenced software. It's across board. Until that changes, you will not see value of software being appreciated. The receptiveness of teachers is a challenge. There's a gap between the student's awareness of technology and teacher's. Students are much more aware. Anything new that you try to get an institution to adopt sees a lot of resistance. Adobe has a lot of online free resources for teachers to use and understand how to use a particular solution. Help teachers get accustomed with new technology. We conduct workshops as well, for instance to help students



Providing special assistance to **students with disabilities**

ost classrooms today have become more inclusive and try to incorporate tools to make life easier for students with disabilities. Most IWBs today have an option to add closed captions to all material for helping the hard of hearing

create an e-portfolio. Online course is also available to find out how to create an e-portfolio.

Ajay Madan, Panasonic

Most institutions face challenges in implementing the tools particularly when it comes to getting the right content and sharing it with students in an interesting way. The receptiveness of institutions to any solution differs from institution to institution. Some institutions may require customisation to help meet their needs. In most institutions the supporting technologies are not upgraded frequently and hence integrating these tools may pose problems.

Anand Ekambaram, HCL

The level of adoption of modern technology in colleges and institutes is on a gradual rise. However, challenges such as infrastructure availability, quality of teachers/ training; accessibility and affordability are some of the biggest concerns. ICT-enabled education requires superior quality multi-media content in different disciplines with multilingual conversion, capacity building of teachers and students in ICT skills and state-of-the-art infrastructure.

students. Specialised assistive technology also comes in the form of customised computer stations and keyboards. Softwares like Zoom Text and JAWS help students with visual impairments to read text from a computer. Likewise, assistive technology software, such as Zoom Text and JAWS, must be made available to persons with visual impairments so they can read computer-based text. There are various screen-reading software that can help students who

have trouble in reading. Many digital textbooks today also offer the option of hearing and reading simultaneously. Fujitsu's Special Support Smartphone App provides lifestyle and educational support to children with developmental and intellectual disabilities.

Examples

Screen Readers: Screen reader software represents what is known as a text-to-speech application, which analyses letters, words, and sentences and converts them into synthetic or digital speech. Today, text-to-speech software is common in many software packages, including many word processing and educational software programs in math, reading, and spelling.



"In most interactive solutions there's software and hardware. While choosing any tool you have to be more careful about choosing the right kind of hardware. While software can be customised to your particular need and replaced easily, it is much tougher to replace hardware. Institutions want hardware to last at least for five years. Failure of hardware can lead to failure of the system"

-Ajay Madan , Panasonic



Addressing **specific learning needs** in specific disciplines

here are some specific disciplines that can make real good use of tools like Simulations and Game. In professional disciplines like medicine, engineering, aeronautics and management simulations can help students understand how to operate in real-life situations. There are various goal-based simulations where the student can reach the goal only by acquiring particular skills and knowledge. Gaming is more complex than simulations where the skills acquired can be refined. Gaming can also contribute to collaborative learn-

ing. Online games like second life can even be used effectively for courses on psychology or sociology. Scientific tools can be embedded and provided for students, According to Srinivas from Pearson, "There are specific tools—case studies, computer science- simulation kind of tools can tell you which parts are working which are not."

Tools

- Simulations
- Games
- Second life

Examples

Online games like 'Minecraft' and 'World of Warcraft' have been integrated into course curriculum. It brings many players together to work on activities that require collaborative problem-solving. They are complex, and include solo and group content, as well as goals that tie to a storyline or theme. This game requires teamwork, leadership, and discovery.

"Institutions must evaluate their needs before they opt for any learning solutions. A check must be done to ensure if the following criteria are met: Relevancy—demand for course based on number of students who wish to enrol themselves,

infrastructure availability—quality and cost of physical infrastructure, richness of content in the solution"

-Anand Ekambaram, HCL



earning in isolation is no more effective today. Maximum learning happens in a collaborative environment that encourages creativity. Online forums, chats and discussions, blogs, Wikis are various collaborative formats that can be leveraged to encourage creativity. Web 2.0 tools like Google Plus can be used to collaborate on assignments.

Tools

Moodle, Webex, skype, Open Educational Resources, Blogger, Adobe education exchange, google for educators

- MOODLE
- Skype
- Adobe Connect
- Google Plus and Hangout

Examples

Tennessee's Freed-Hardeman University recently made a collaboration tool, Contribute. Students can virtually share documents, videos, files and ideas in real time. Also, degree seekers can archive the information for later use.



"Don't window shop for tools. Don't say here are 10 things available what should I take? Introspect on—What is my challenge? What do I want to do? Why do I want to do it? What do I hope to achieve as a result of its implementation? Take a consultative approach when discussing with any partner. Don't just say that I am going to buy it"

-K Srinivas, Pearson

"To choose the right tool one must check for interoperability amongst all technologies utilised as most educational institutions employ solutions from varied service providers. Secondly, the solution should be in tandem with the existing building infrastructure. Another point to be considered is existing and the future application to distance learning or remote participants"

-Adil Mirza, SMART



You may want to fulfil one or various objectives listed above in your institution. However, you will still find many tools available to fulfil one or multiple needs. According to Mirza from Smart every subject, college or classroom would have a different set of requirements and the parameters have to be thought through. To help you finally decide on the tool you want. You may want to answer the four questions listed below:

1. What is the goal of your course/ institution?: If you have a defined vision at your institution and a definite goal for your course you should list that out first.

For instance, you could have one or more of the ways listed above as the greater goal of your institution and in particular you could have a defined the goal of a course. The goal of your course could be to ensure that students understand a particular concept and are ready to apply it in various contexts.

2. Who are your students?: Are your students tech-savvy? Are they comfortable with working online? Are they analytically inclined or creatively inclined? Do they have any particular needs? How varied is your class in terms learning styles and pace?

3. In what context do you want to use the $\,$

tool?: What courses do you offer in your institution? Where are you located? Are you in a big city or a rural area? Are you already using some tech tools? Do you want those tools to complement the new tool you want to acquire?

4. What are your constraints?: What is your budget like? Does your institution provide laptops to all students or does your institution have a BYOD (Bring your own device) policy and in this case do all studentss own a laptop or any other electronic device? Are your teachers techsavvy? Do you have a way or plan of making your teachers tech-savvy? Does your institution have Broadband?



Achieving Institutional Excellence

You got a peek into EDU survey results in a previous issue, here are the detailed findings from the survey





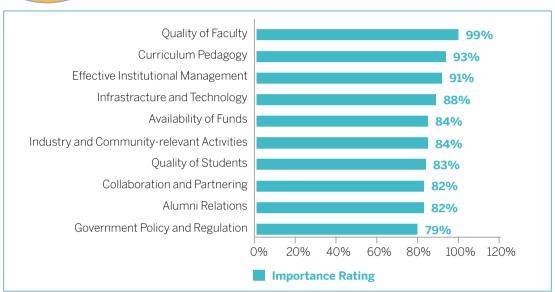
Pursuit of Excellence

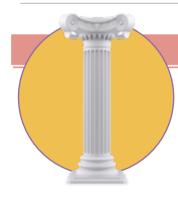
That factors are important to attain excellence? Is infrastructure or funding the key factor? Or is it a combination of several factors such as management, students and faculty quality. These and many other factors were rated by over 350 respondents in EDU's Achieving Institutional Excellence Survey. The survey findings can be said as a reflection of what EDU leaders are thinking today because more than 70 per cent of the responses were from institution leaders such as Vice Chancellors, Pro Vice Chancellors, Directors and Deans.



Decoding Institutional Excellence

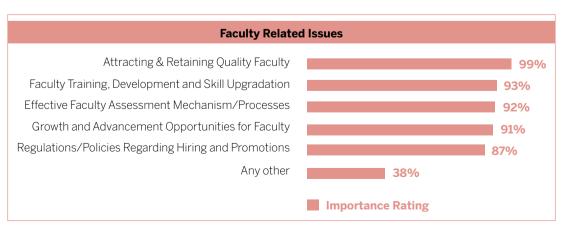
overall Quality of Faculty came out as the most important factor followed by Curriculum Pedagogy while Government Policy and Regulation was voted the least important.





Focus on Faculty

With a demand of more than 100,000 professors every year but only a few thousand PHDs awarded every year there's definitely a shortage of quality faculty. Hence, it was no surprise that Attracting and Retaining Faculty came out as the most important faculty related issue. Regulations/Policies for hiring was ranked as the least important sub factor which confirms that institutions are constrained by the quality of faculty available rather than government policies.

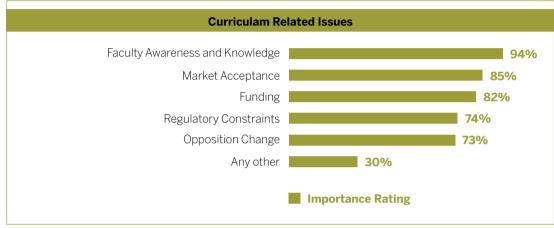




Contemporary Curriculum



Importance of Curriculum was undeniable. Across geographical regions it was considered the second most important factor and in the Western Region Curriculum and Pedagogy was rated even higher than Quality of Faculty in terms of importance. Faculty Awareness and Knowledge was rated as the most important Curriculum related issue for achieving institutional excellence followed by Market Acceptance.





All's Well that's Managed Well



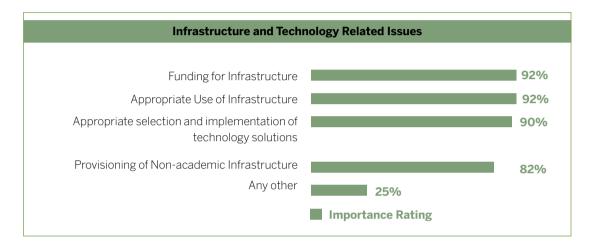
Effective Institutional Management is key to excellence which was reflected in the survey responses as it was ranked third in importance. Use of Technology Solutions in Administration was rated as the top most factor clearly underlying its importance in achieving institutional excellence. Technological solutions can automate and streamline administration and help institutions utilise resources optimally.





Resource Optimisation

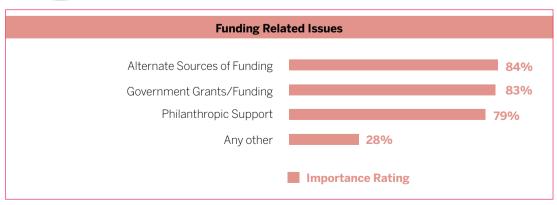
Infrastructure and technology's role in achieving excellence is vital, it was rated second most important factor by presidents/CEOs while it stood fourth overall. Funding for infrastructure and Appropriate Use of Infrastructure came out to be the most important issues overall. Among directors and vice chancellors Appropriate Use of Infrastructure was the most important issue indicating that use of available resources was on top of their mind.





Beyond the Government

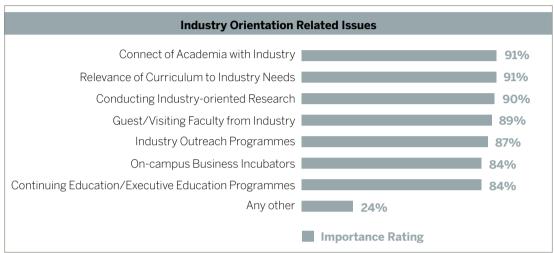
Funding related issues were at fifth spot overall with Alternate sources of Funding and Government Grants/Funding perceived as equally important sub factors. The results indicate that institutions today realise that excellence cannot be driven just with Government Grants/Funds.





Industry Sync

A cademia cannot remain distant from industry and this factor came out pretty clearly in the responses as Connect of Academia with Industry and Relevance of Curriculum to Industry Needs were rated as the most important sub factors.

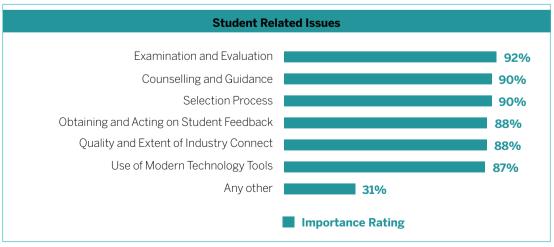




Quality Control



Institutions understand that tomorrow the world will know them by the students they have today. The higher importance scores for Examination and Evaluation over Selection Process suggest that institutions believe that getting good students is not good enough they need a continuous examination and evaluation too.





Sharing to Excel



aculty issues have dominated the survey results. Everything from attracting Faculty Quality, Faculty Training, Faculty Awareness/Knowledge have been rated high on importance but in Collaboration related issues its sharing of best practices that has been rated most important much ahead of Faculty Exchange Programmes, which can help overcome faculty shortage and also enable best practices sharing at the same time.





The Inside-Outsider

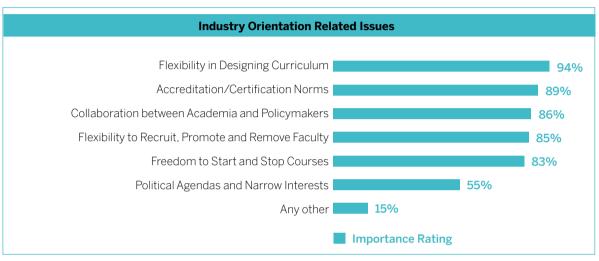
lumni Relations is around the bottom but was voted the third most important factor by institutes offering both Engineering and Management courses. Surprisingly, while Recognising Alumni as Stakeholders was considered the most important sub factor, Alumni Involvement in institution issues was considered the least important.



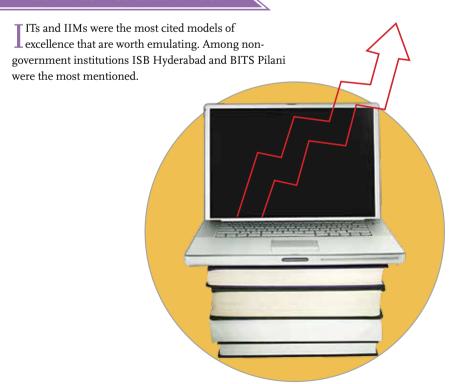


State-less Affairs

overnment Policy and Regulation came out the least important overall and also across groups, regions and various types of educational institutes. Ratings indicate that Government Policy is not considered an important factor in achieving excellence. Flexibility in Designing Curriculum was rated as the most important sub factor followed by Accredition/ Certifications Norms.



Excellence Institutionalised





Remedying a Pressing Situation

Students from vernacular language medium schools face uphill challenges when they enrol for mainstream higher education courses. Possibly the biggest is the transition from learning in their mother tongue to studying in English. As the country steps up efforts to achieve the Gross Enrolment Ratio objectives set for 2020, a greater number of such students will get an opportunity to make it good. Will they?

BY CHARU BAHRI



proar ensued over the suicide

of a first-year reserved category AIIMS student earlier this year. Unable to cope with the transition from learning in Hindi to English, Anil Kumar Meena opted to check out of the system and out of life itself. Meena's tragic end brought into the limelight the need for handholding less privileged students after they gain entry to mainstream higher education.

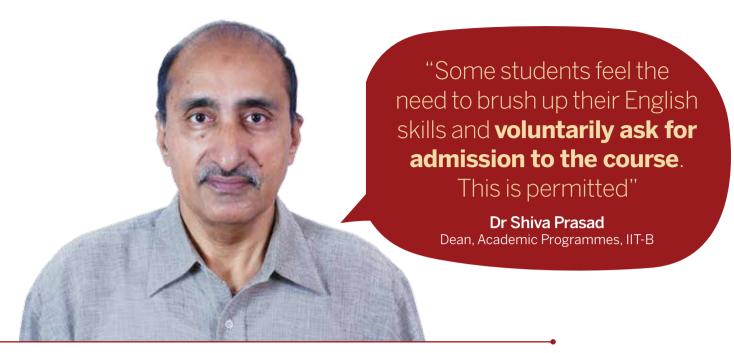
Spotlight on Remedial English

If increasing access to higher education is one of the strategic goals of the Indian education system, then reservations action this objective for a small number of minority background students. Better access to education loans is also enabling students who would usually drop out of the education system to study further.

According to Dr Joydeep Banerjee, Assistant Professor, Department of Humanities and Social Sciences, National Institute of Technology, Durgapur, "We're seeing a greater number of new students with inferior English language skills. Such students mostly come from SC/ST/OBC backgrounds in remote towns in Rajasthan, Andhra Pradesh and Bihar. We attribute this inflow of students from economically less privileged families to higher familial aspirations and easier access to education loans."

That a greater number of less privileged students are studying further is a positive sign. Only, merely granting them admission to their desired course of study isn't a game-changer. It marks the starting point of a commitment to handhold them until they successfully integrate with the mainstream. Many such learners need assistance with their English language skills to cope with the academic teaching and compete with their peers for the best jobs. So concluded the Sukhadeo Thorat Committee in 2006 after investigating allegations of differential treatment of SC/ST students at AIIMS. Since lectures are delivered in English, it isn't enough that AIIMS conducts examinations in both English and Hindi and





offers students optional English lessons. Learning English must be made mandatory for needy students.

Successful Remediation Initiatives

Some colleges in India are working on bringing students with inadequate English skills up to speed. School of Social Work, Roshni Nilaya (SSW, RN) in Mangalore introduced remedial English courses for its graduate programme students six years ago. According to Dr Sophia Fernandes, Principal, SSW, RN, "Remedial English classes are a must since many of our students—undergraduate as well as graduate—come from rural/less privileged households speaking vernacular languages and/or have schooled in vernacular languages. We give a preferential option to students from such backgrounds as we believe in their capacity to assimilate themselves with the mainstream."

The school's experience has been very positive. Students feel the need for these extra classes themselves and take them very seriously. Consequently, the initiative has been expanded to cover postgraduate students as well. Roshni Nilaya's English classes are practical oriented. Course starts soon after the new term begins and lasts through the year, on fixed days during the week because

"in order to make a difference, language classes must be held for a considerable duration of time," observes Dr Fernandes. As for the content, she elucidates, "We encourage students to learn how to respond in English while relating their personal and professional real-life situations. Their practice is augmented during field tours, when they interact with officials in social organisations."

Last year, IIT Mumbai introduced a two-pronged initiative to bring up its undergraduate students with weak English language skills. Dr Shiva Prasad, Dean, Academic Programmes, IIT Bombay, explains: "All of our first semester students take an elementary English test. We measure these results in correlation with each student's entrance exam (JEE) standing, as students with below average English skills but with a strong understanding of the core subjects (physics, chemistry, mathematics) would still manage to keep up with coursework. Our focus is students who are weak in English language skills as well as in their basic understanding of core subjects. They would find the going doubly difficult. They are put through an intensive programme in English. They also go through some of the first semester core courses at half the regular pace, that is, they attend fewer lectures to ensure that they can comprehend the technical terms. They re-register for these courses next semester, which are run at regular pace."

Of an intake of 900 students last year, about 25 were mandated to study English and go slow with their coursework during semester one. Students can also voluntarily sign-up for the intensive English course. "Some students feel the need to brush up their English skills and voluntarily ask for admission to the course. This is permitted," says Dr Prasad. A separate initiative focuses on postgraduate (PG) students' language skills. "PG students can speak and read English but some fall short in communication skills like debating, which come in handy during presentations at scientific meets," he adds. Therefore, the focus for PG students is to improve their communication skills.

Jawaharlal Nehru University (JNU) has been coaching needy students in English and core subjects since 2001 to raise their comprehension level and strengthen their fundamentals for further academic work. A remedial coaching coordinator attached to each school/centre organises these courses. JNU teachers also make efforts to explain subjects bilingually, in English and in spoken Hindi. If that weren't enough, the university stepped up its offerings a few years back.

Going the Distance

Professor Vaishna Narang, Chairperson, Centre for Linguistics, School of Language, Literature and Culture Studies, JNU, explains why the Linguistic Empowerment Cell has recently rolled out Basic Foundation Courses in English and English for Academic Writing courses for students whose English is weak. "At INU, remedial English classes aren't taken up only by ST/SC/OBC and other candidates from regional language medium schools. Since our catchment area spans the length and breadth of India and SAARC nations, we get an extremely heterogeneous student intake. A significant proportion of entrants hail from other than English medium schools. We are determined that a stronger focus on handholding students as they start learning in English is in keeping with the social justice and affirmative action core objectives of JNU, which we take very seriously."

JNU's new initiative aims at helping entrants integrate with the new milieu and not fall back in their development and studies because language poses a hindrance. New students' language skills are tested and graded. Special lessons start thereafter for those in need. Professor Narang says these classes are becoming very popular, with students clamouring for more batches.

Cutting Across Boundaries

t's high time that universities in India bring the issue of remedial English out into the open and stress holistic affirmative action. Why brush the problem under the carpet when this very issue is plaguing universities in the land of the Queen's English? Close to half of all British universities are putting select first-year undergraduate students through English (and mathematics) remedial classes. At the University of East London, demand runs so high that two full-time lecturers have been appointed to run basic English classes. Some believe that the problem is more widespread than has been reported, with practically every single university in that country experiencing a gradual decline in mathematical and English writing skills and an understanding of grammar.

In UK, falling standards in higher education are being attributed to the deteriorating quality of undergraduates as a result of the government's 50 per cent participation rate goal. Similes can be drawn between the situation here and there.

The situation is pretty much the same on the other side of the Atlantic. According to the Alliance for Excellent Education, a Washington DC-based policy group, one out of every three students entering higher education in the US needs to take some sort of remedial course, in the basics of reading, English or mathematics. Remediation, as it's called, is the norm in four-year private and public universities and community colleges.

-CB

Remediation can take many forms. Some institutions go the distance to help needy students make the most of university education. No miracle, it works slowly but surely. "It's hard to say how long it

takes for a student hailing from a non-English medium to catch up with the rest. I would reckon that the real benefits kick in about five years down the line, when it's time for the student to join the

"Role playing and in-house theatre productions especially help build students' **confidence, team** work skills, public speaking and presentation skills, etc"

> Vinod Krishnan Associate Programme Coordinator, CREST





workforce. English speaking job-seekers find more rewarding positions," estimates Professor Narang.

A Package Deal

Not only English but also soft skills are tested in the competitive job market. Which explains the relevance of the Centre for Research & Education for Social Transformation's (CREST, formerly Centre of Excellence at the Indian Institute of Management, Kozhikode) signature communications course, a five-month Postgraduate Certificate Course for Professional Development for graduates/ professional degree holders from scheduled and backward communities. Apart from communication skills, the course includes training in self enhancement, information technology, quantitative and analytical skills, employability skills and entrepreneurship development. "While language is no doubt a major hindrance, students from less privileged backgrounds also fall back in presentation and soft skills. We aim to take care of all these aspects," says Vinod Krishnan, Associate Programme Coordinator of CREST.

Most of CREST's students have schooled in vernacular languages in rural and semi-urban areas. They find it difficult to communicate fluently in English in spite of having studied the language. According to Krishnan, "the fear of making grammatical errors holds them back".

Krishnan advocates CREST's teaching methods to any institution with genuine intent. "We use videos, audio clippings, language laboratory, role plays and theatre, etc in addition to regular teaching sessions. We work mostly one-on-one with students. We insist that students read at least two English newspapers a day and read and review books. Role playing and in-house theatre productions especially help build students' confidence, team work skills, public speaking and presentation skills, etc."

Funding Matters

Remediation will become more relevant as India progresses closer to its higher education gross enrolment ratio target. Then, the cost of remediation is likely to become a point of discussion. Funding for remediation already is a hot topic overseas.

The Alliance for Excellent Education report estimates that remediation cost the US\$ 5.6 billion during the 2007-2008 school year, of which \$2 billion would have been on account of lost wages from the lower odds of remedial students graduating. In the wake of tight public higher education budgets, remediation is competing with funds set aside for research and degree classes. City Colleges in the US are actually considering ending their open admission policy, which brings in students with greater remediation needs, to cut these costs.

For remediation to get the adequate attention, quality and funds that it deserves, Indian institutions will need to see it as an integral part of their academic programme. Only then can the remedial system be strengthened. SSW, RN is one such institution that is adopting the right approach to solving the problem. It not only relies on its own teachers to conduct these classes, but also employs external specialists. As for funds to meet the extra expenses, Dr Fernandes shares, "We used to ask our management members and well-wishers for contributions to run these classes. Things have become easier since the UGC has recognised us as a College with Potential for Excellence. Now we can apply for grants for activities for student's development."

Another approach is to establish a full-fledged humanities department and include English language as part of the compulsory curriculum. This is the practice at the National Institutes of Technology. "It means repetition for students with good English skills while it's an opportunity to make good for those with weak language skills," says Dr Banerjee.

Compulsory classes shift the onus from the student to the institution. Some find this a better proposition to leaving it to students to enrol for extra coaching.

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One to Many: The Way to Go

Aligarh Muslim University has taken up residence in Murshidabad and Malappuram. XLRI is scouting for a new address in the NCR. Contrary to the elitist education brands' stand of putting a full stop at one-of-a-kind campuses, the concept of multi-campus institutions is garnering a staunch following in the country from the best in the business. All for good reason. India desperately needs a greater number of seats to achieve its objective of inclusive higher education

BY CHARU BAHRI

roponents of the concept of single campus institutions vouch that centres of excellence are best nurtured solo. One-of-a-kind Harvard and Oxford stand apart for espousing brilliance in myriad ways. But can it be safely said that their excellence flows from their exclusivity? Then, would expansion dilute their excellence? More pertinently, what does waving the flag of exclusivity say about the relevance of an Indian education brand to its target group?

Answering the Nation's Call

India desperately needs education of minimum acceptable standards for the maximum number of people, not islands of excellence for an elite circle. Which isn't to say that the country doesn't value merit in education. It does. India needs a greater number of seats, including higher capacity in the best institutions. This can only happen if Indian education brands symbolising excellence replicate their achievement in multiple locations.

Private sector technology education stalwart BITS Pilani has, for instance, replicated its success in Pilani in Goa and in Hyderabad, in India, not to mention in Dubai, overseas. Publicly run Brand IIT started out as a multi-campus brand and is scaling up well. Brands lower down the pecking order, such as Bharati Vidyapeeth University,

Amrita University, Amity University etc, are multi-campus institutions as well.

An overriding factor in the Indian education scene is the need for every good institution to expand. Then, do multicampus universities pave the way forward? Dr Bijendra Nath Jain, Vice Chancellor, BITS Pilani says, "Institutions must have a strategy for planned growth to meet the aspirations of the growing population of young men and women. If opening a new campus is part of this growth strategy, so be it."

Why Multiply?

Sometimes, expansion is explicitly written in the charter of an institution or can be implicitly construed from the founder's vision. Visionary founder of Aligarh Muslim University Sir Syed Ahmad Khan and his son Justice Syed Mahmood had great hopes from the centre of learning that they backed. As far back as 1973, Justice Mahmood suggested that the

University might establish schools not only in the University town but also elsewhere. Dr Rahat Abrar, Public Relations Officer of AMU, sees the decision to create AMU campuses at Murshidabad and Malappuram as fulfilling the founders' vision to do more to cater to the educational need of minorities. "Whereas the university has started operations from rented premises in its two new address-

es, the construction of spanking new campuses is getting underway on land allotted by the state governments of West Bengal and Kerala," he shares. That's not all. A campus each in Bihar, Maharashtra and Madhya Pradesh may be in the offing, if the respective state governments affirmatively respond to the institutions' request for land.

Which brings up another aspect spurring the concept of multi-campus institutes in India—land and water constraints at the site of the original campus. This has

been BITS Pilani's experience. Locational constraints associated with the flagship campus can also hinder maximum engagement with key stakeholders of a reputed education brand. Consequently, it makes sense for the brand to open new campuses in more accessible locations to benefit a greater number of students and executives. Jamshedpur based renowned management education brand XLRI is expanding to the NCR for this reason. XLRI's NCR campus would help operationalise the brands' long-term strategy of becoming a global management school proffering new programmes, included residential initiatives, to experienced executives from India and abroad and to a hetero-

geneous pool of students.

"Our university has started operations from rented premises in its two new addresses.

Campus construction is getting underway on land allotted by West Bengal and Kerala"

—**Dr Rahat Abrar** Public Relations Officer, AMU

"Well-connected metros are also within reach of outstation students aspiring to attend short-term or weekend programmes"

-Sunil Varughese Chief Brand & Sustainability Officer, XLRI

According to Sunil Varughese, Chief Brand & Sustainability Officer, XLRI, "Reputed educational institutions of a long-standing consider creating new campuses in large cities where they are more likely to access a larger pool of target market segment. As a result of thriving economic activities, most Indian metros present a fairly diverse pool of students, in terms of gender, experience, nationality etc. Well-connected metros are also within reach of out-station students aspiring to attend short-term or weekend programmes." Arguably, an XLRI campus in the NCR would draw more students than XLRI Jamshedpur, especially for short-term courses and executive programmes. Better placed campuses also attract talented faculty and pave the way for greater industry interaction for students and faculty from the mother campus.

Multi is the Way to Go

Interestingly, research demonstrates that multi-campus education brands are making greater sense in Australia as well. A study conducted by the University of Western Sydney shows that multicampuses in that country stand out for stressing student access and equity and community or regional engagement. These aims are being achieved by managing diversity while serving students with different backgrounds, by helping students from remote areas access higher education, and by optimising the prospects of students who are first in their family to attend university.

Another positive finding is that Australia's ten universities with three or more campuses and not more than 60% of their total student load on the largest campus are achieving similar performance as their single campus counterparts but with lower total revenue per student. This brings up the pertinent aspect - does establishing more campuses introduce any cost-efficiencies?

"Cost efficiencies could kick-in, depending on the type of course, new campus location, profile of target students, delivery model, proportion of practical and theoretical lessons, etc. The success and cost efficiency of multi-loca-

New Campuses: Replication versus Localisation

oes going the multi-campus way mandate an institution to replicate itself ditto-ditto? In the retail and hospitality sectors, for instance, branding entails a measure of sameness across outlets. To what extent should a new campus mirror the mother campus? Should the physical layout of the campus be similar or imbibe nuances of the local surroundings? What about local inputs in programming?

A report of the Presidential Task Force on Multi-Campus Governance of Canada's Wilfrid Laurier University says, "Local innovation in programming" is critical to a successful multi-campus university model. Campuses should and must take advantage of the assets associated with their local and regional communities to provide students with the most up to date and engaged university experience possible."

At the outset, existing financial, faculty and disciplinary policies may be applied to new campuses to maintain the brand equity. "Introducing the set of best practices proven in the mother campus gives the new campus a good start. As the new campus finds its feet, it must be encouraged to begin charting its own growth path. Our guidance to BITS Goa and BITS Hyderabad is: 'do what you must to move forward without violating the basic norms.' I anticipate that they would gradually come up with ideas and policies that would help them to move ahead faster. It's important that they develop their own identity. That would also pose some competition to the mother campus," shares Dr Bijendra Nath Jain, Vice Chancellor, BITS Pilani.

A strong independent character and autonomy over local matters, including finance, is essential for any new campus to strengthen the institution's name and actually surpass its parent. Tagging secondary campuses as mere branches or satellites or mirrors of the mother planet campus doesn't allow their character to fully develop.

-CB

tion campus also depend upon the credibility and learning environment of the institution," says M Sairam, Head, Process Consulting, ICRA Management Consulting Services Limited (IMaCS).

Gaining Cost-efficiency

Access Atlantech College offers graduate, diploma and certificate programmes in media and entertainment across four campuses. According to CEO Rathish Babu, "Scaling up drives cost efficiencies if it isn't capex-intensive. Therefore, institutions teaching subjects that are amenable to a medley of classroom and online teaching reap the most cost efficiencies when expanding. Capex-oriented institutions don't make significant savings from establishing multiple campuses. They may gain cost efficiencies from optimising spending on branding and media, from replication of concept, from minimal adaptation in cross-country locations and from exposing their students and faculty to a wider variety of experiences."

Illustrating his point with Atlantech's experience of expanding from Chennai to Bangalore and a year later to Mumbai and Delhi, Rathish adds, "We expanded to achieve student numbers and scale. While these benefits kicked-in, the exercise didn't usher in any cost savings because the capex was huge in each campus, averaging between rupees 2 to 3 crores. Institutions mustn't expand too fast and spread themselves too thin. Also, good partnerships with universities and industry don't eliminate the need to adapt courses to suit differing student requirements, psychologies and profiles in diverse territories." "General education, MBA and service related courses are being better suited for delivery through multi-location campus. Hard skills like engineering mandate significant capex in the new campus," adds Sairam.

Still, investments in IT infrastructure could deliver some cost efficiencies irrespective of the kind of institution. Sairam elucidates: "Cost efficiencies flow from sharing content development and e-learning/library management sysequivalent quality and affordability on several campuses. According to Varughese, "The institution needs to assiduously foster the culture and other tangible and intangible aspects of their mother brand within the new campus so that students and other stake-holders don't experience any dissonance vis-à-vis the brand promise. Extensive planning paves the way to successfully emulating the mother brand's reputation and credibility in the new campus."

In Australia, multi-campus institutions tend to be newer universities, sans reputation and history to rely upon and to attract the most talented faculty from around the world (not to talk about the students). In the time to come, some of the newer IITs will indeed overshadow the older ones, not just in excellence in teaching, research and innovation, but also in size."

Charting the Path Ahead

Progression from one to multiple campuses is bound to call for changes to the governance model. Professor Jain cites the University of California (UC) Berkeley's evolution of governance as it has expanded to ten campuses as noteworthy. UC Berkeley was established in 1868 and expanded to five campuses by 1952. Until then, the UC President used to sit in the Berkeley campus, which controlled all the other UC locations. Subsequently, each campus was granted a high degree of autonomy and Chancellors were appointed to manage its day-to-day operations. Chancellors reported to the UC President as equals.

> In the bigger picture, growth is essential. It's about staying alive, staying relevant. Single campus universities translate it

It's up to each university to find an

overarching form of governance

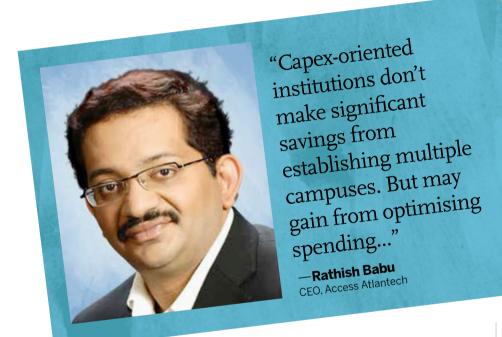
that suits its evolved form and keeps the spotlight on

excellence in teaching, research

and innovation.

as enhancing brand value. But multicampus universities can create effective strategies to enhance brand value as well. BITS, for instance, is working on enhancing its brand equity on the back of 65 per cent growth of its PG and PhD programmes across its four campuses. In the India context, the need of the hour is larger multi-campus universities that offer a wide variety of courses to a greater number of learners. Universities that affirmatively respond to this call would inspire that many more and build their institutional strength in the process. Here's to them.

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tem creation costs. Centralising functions such as admin, admission, evaluation and placement processes can save costs as well. More gains accrue if faculty can be shared or lectures can be delivered through VSAT."

Growing Brand Equity

Institutions weigh myriad factors besides the cost angle before deciding to expand geographically. Challenges faced by multi-campus universities straddle academic, administrative and financial matters, of which the foremost is delivering education, facilities and resources of long-term investments in teaching, research and facilities. In India, some top education brands (Brand IIT and Brand IIM) were launched as multi-campus universities. Other leading institutions are treading the path as well. The taller the reputation, the more the brand stands to loose if its expansion bid fails. Fear of spreading the brand equity too thin coupled with the elitist single-campus stand of the world's foremost universities fuel the perception that going the multi-campus way dilutes brand value.

It needn't be so. Professor Jain points out, "Far from having taken a hit, the IIT image is rock solid today. They continue

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Using Video Effectively

Lynnette Whitfield talks to *EDU* about how Unified Communication is helping education go global

BY SMITA POLITE

EDU: What are flipped classrooms?

Lynnette Whitfield: Flipped classroom or flipped learning is the latest buzzword around the world. In the US and Europe especially in UK, educators are becoming more of a mentor or a coach and helping students understand their subject rather than just being a public speaker. The information gathering and learning a subject happens outside the classroom and includes video recordings using our technology. The students watch these videos with their friends and collaborate online or through learning management systems on specific topics. What used to be earlier homework, now happens in the class. This new method has changed the way education is delivered. Students are seeing their grades improve and teachers are finding it more rewarding.

□ Can you explain what virtual field trips are and how they can be planned?

A lot of those people who use technology want to do more with technology than let it just sit in the classroom. I work with everything from pre-kindergartens right up to adult education even past postgraduate and PhDs. I have seen that the K-12 sector is like a sponge or information absorber and that makes it really an untapped market. The university sector can thus use this fact and become content providers in specific subjects and even export this content to countries around the world. In the United States, Canada and Australia, universities are delivering virtual content







in fields like music, science and astronomy. Schools in K-12 can take their class into museums, galleries and aquariums through a virtual field trip with the help of a virtual content provider, without having to get into any car or bus, sign permission slips or pay exorbitant entry fees. The information from these trips can be absorbed into the class curriculum and the teacher can now have something to refer to in the class. A few weeks before the virtual field trip is planned the class learns everything that they can about that particular topic through videos and other materials before the final virtual trip or videoconference. This helps not just in understanding the topic, but also in preparing students to be able to ask questions and making it interactive so that you are not just listening to someone talk. The virtual trip becomes really engaging and even entertaining.

How can virtual field trips help in higher education?

△ Let me give you a few examples. In April, we did an event for MYREN (Malaysian Research & Education Network). We got 12 universities in their region together and connected them all into the bridge. We brought in content providers into the MYREN research network. One of them was a marine biologist, so they were diving inside a tank learning about ocean sustainability and climate change. This was about sea life for first and second year zoology, microbiology and marine biology students in universities.

In another instance, the music school at Australian National University delivers a virtual music class that had renowned musicians playing. Through this virtual connect they can now also get the director of a music school in Malaysia or anywhere else in the world. They understand that they have wonderful musicians but they would love to be able to bring in certain experts to coach the students to a further level and this was an excellent opportunity to do that.

☑ Do you see a potential for Indian universities to generate revenue by becoming content providers and organising virtual trips?

▲ India has developed some of the technology that we use like apps and technol-

ogy chips. Some of these technologies have even been developed by students in universities. For university students studying technology that's a huge accomplishment. Universities wishing to now increase their revenue and bring in money for their departments could use their first, second and third year students to help deliver the content for schools. A lot of universities are becoming content providers for schools and charging for these sessions. However, the time zones of these universities place restrictions for countries that can use the content provided by them in the Asia Pacific region. So, there's a whole market in the Asia Pacific region where there are many universities looking for good content but not willing to stay up till two in the morning to watch. India has a perfect opportunity to tap this market. Currently, India does not have any virtual events but I see a huge potential for universities here to enter this segment.

How do you help universities to become content providers?

▲ I am trying to build the content provider programme for universities, galler-

The kind of learning that happens by collaboration on the virtual space can be very enriching...a school involved in indigenous studies in Canada collaborates with another in Australia and shares experiences

ies, and museums. I help them with training and marketing. We also introduce schools to these content providers via virtual events. So, we have five schools that can participate in one session. I run the background using a bridge and the schools dial in. In March, we had an event on deforestation. In March we had an event on DeforestACTION which was sponsored by Microsoft, and run by TakingITGlobal and Centre for Global Education. It had actual eco-warriors in Borneo live on a webcam in the middle of the forest and they had orangutans right behind them. On the call we had schools from Canada, Taiwan, Singapore, USA. New Zealand. Australia and three schools from India. Students in India had to get up at 6 am. Despite that, they had full attendance.

Events like these help to build interest in the content providers and then some of these schools end up taking one-onone sessions. These introductory sessions by us are always built around a curriculum and are free of charge. Our training to these content providers is also free of charge as long as they are Polycom customers. Indian institutions can also choose to become content providers. Even for professors who get engaged in such a programme, it's a great way to differentiate them and even get some speaking engagements.

advantages of using video?

⚠ The kind of learning that happens by collaboration on the virtual space can be very enriching. For example, if a school involved in indigenous studies in Canada collaborates with another school on indigenous studies in Australia, because they have similar health issues and cultural issues they can share their experiences and learn more from their differences and similarities. There are conferences called Impact of Climate Change on Global Indigenous communities where elders from 14 countries talk about how climate change is changing the way they hunt, eat, and live and the way it is affecting their health and the future of their children. Teacher professional development is another area where video can be used. Teachers can't always come into the main city to do a teacher professional development class. By doing a videoconference with their iPhone, tablet or PC, they can still dial in and participate in the training to upgrade their skills. This is what Australia and China are doing.

Now can video be used to attract prospective students?

△ Let me give you an example. Charles Sturt University has a remote telescope in Bathurst and they were holding a virtual astronomy class talking about the southern stars for schools in the northern hemisphere. One of the school students on video call, asked the professor taking the class to talk more about the university and ended up saying, "I really like your school. I think I may apply." And she actually did. There are many such examples of students coming to a particular university after attending a class over video. These school students could pick any university in the world, but because of the programmes that were delivered over video by some university they land up choosing it over the others. Students consider these videos interactive, entertaining, and informative and believe that someone who came up with programmes like these must be the best in breed. The professors and students delivering these programmes become almost like celebrities and the students want to go and study with these people.

☑ In the age of Skype why do we still need videoconferencing?

△ Skype is videoconferencing but it is videoconferencing over public internet of which there are no settings that control the technology. So, you are relying totally on the internet which is free for all and you are there with everybody else. Our videoconferencing technology is highly specialised and has settings to help you control the technology. Polycom has high definition and technology that ensures that even if you have a low bandwidth you can still achieve high definition. We have something called internet protocol loss recovery, which means a caller stays up even if internet drops for a bit, in any other technology it's a total dropout and the user has to redial. So, we really try to keep the experience of the user at a high level.

ITECHNOLOGY

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TECH INTERVIEW

Dave Cormier

Learning to Face Uncertainty

Dave Cormier on how rhizomatic learning equips students to handle uncertainties of decision-making **BY MITIA NATH**

Tell us about rhizomatic learning.

△ The idea of rhizomatic learning is to prepare students for the uncertainty of the decisions that they may have to make. Students come to my classrooms to learn about educational technology or to understand a little more about how knowledge is being negotiated online. They are looking for a way to grab a set of tools and get specific

things done. They want answers to questions, for instance, how to use a blog. Unfortunately, those are not the questions I'm going to answer.

Rhizomatic learning is actually the skill set that people need about to deal with uncertainty of situations. Many of the important questions that we have are complex and don't have simple answers. There are things that are indelibly set to a context. In India, it's going to be different. It'll be different in my classroom than your classroom—the skills you have, the people who walk in. If we set up our educational system with a set of knowledge that we want people to take, all we are doing is imprinting our own context over everybody else. With rhizomatic learning what I am trying to do is give people a chance to take their own

TECH SNIPPET | Launch

Kindle Store, Digital Publishing launched

Amazon has taken a step towards providing a broader selection of its services in India, with the launch of the India Kindle Store on Amazon.com, found at amazon.com/ kindlestoreindia. Users will get access to wide selection of e-books, including Indian authors, and exclusive works, priced in Indian Rupees. Independent Indian authors and publishers will be glad to know that Amazon also launched Kindle Direct Publishing (KDP), giving them a fast, free and easy way to make their books available to Kindle customers

in India and around the world on both Kindle devices and free Kindle reading apps. With KDP, authors and publishers will be able to set India-specific prices, as well as receive royalty payments in rupees. Visit Amazon's KDP page for more details–kdp.amazon. com/self-publishing/help. Russ Grandinetti, Vice President, Kindle Content, Amazon.com, spoke on the

occasion, saying: "We are proud to launch this new Kindle store for Indian customers offering purchases in rupees..."

journey, to work for their own context and to be able to grab enough of such skills that will provide answers to the uncertainties that they come across, and not the right answers necessarily. In classrooms, I am giving students situations they have not seen before, a challenge they have not encountered.

Suppose I take a group of students who have not seen Twitter and I ask them to sign up for a Twitter account. The first thing they will say is that they have no clue to what I'm talking about. Then we will walk through a decisionmaking process. Then I'll leave the room and they will say nasty things about me because they don't know what to do. But what I'm trying to do is to help them face that uncertainty. After that I'll come in and structure things a bit more, then we might face another challenge, idea, technology or something. From there on they will work together to reach those things, try potential solutions and gauge how those solutions are working and then come up with responses. By the end of it, they will learn how to blog, use Twitter and will gain those skills. Most importantly, they will gain the ability or the confidence to try and not say 'I don't know how to do this'.

② Is there any specific age group for rhizomatic learning?

△ I don't think so. There are people who have strong beliefs about what learning. I've seen that in 10-year-olds and in 80-year-olds as well.

Your students are usually in what age group?

A From three to 60 years old. And to be honest, I see very little difference in people's willingness to engage. Older group has a broader understanding but they are a bit more embedded, whereas the younger group has less experience and is often more stubborn because they haven't learnt yet that to get things done you have to give in and negotiate a little. I find challenges in each of these age groups.

"India has skill issues which are really interesting when I look at the way the state is planning to train 500 million people in the next nine years"

A I find some really interesting possibilities here. I wouldn't claim to know a lot about the culture to make broad statements. But you guys have got skill issues which are really interesting when I look at the way the state is planning to train 500 million people in the next nine years, an unbelivable number and a huge challenge. The tendency in education, as you start to get bigger numbers, is to standardise because it is easier to track and measure. So from my work, maybe the most interesting thing is what India can do to put some of that creativity into a system that large. How can it make sure that the skilling that happens isn't simply training people to the best knowledge we had 10 years ago. Rather, it is preparing them for the uncertainty they are going to face. And if you manage this, India will be an entirely different country and it will change the entire face of the workforce. You need more people to come up with new ideas and ways to provide services and goods for all of the people. The competitive advantage of cost of labour is also going to rise. The same thing happened in South Korea—as people got trained their salaries went up. This will be great for India. But you will have to come up with new competitive advantages and that will require creativity. And it will be an interesting process to watch.

○ What's the role of online learning in this process?

⚠ The way university system was set up people had to have an awful amount of knowledge in their heads as back then books were crazily expensive. We all needed to pool our resources of knowledge and everybody had to come to a city to get access to them. We needed to be didactic and had to do those lectures because that was the only way to give 400 people access to those expensive books. Once you bring internet into play that

whole thing goes out of the window. All of a sudden all my students can access the same resource at the same time just like that and that makes a huge difference. I met George Siemens on his blog because he was saying something online and I told him I did not agree with him. Instead of shouting in the living room after reading a book, I was directly able to interact with him online. He wrote back to me and I replied back. It gave me answers that the book was never going to give. So from my student's perspective,

they can reach out and do things which allow me to give them more freedom and step out of the classroom. Whether you are doing the learning online or not, the access to online completely changes my role as a facilitator. All of a sudden I can be a leader but not the decider or decision-maker.

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TECH TUTES

Cloud Computing

By Tushar Kanwar

Take your Campus onto the Cloud

he forecast is cloudy. Little wonder that institutions across the world are giving their cloud strategy a keener look as they look to tackle the challenges of ever-dipping IT budgets while simultaneously providing anytime-anywhere computing to all their users. But before we discuss the key cloud considerations for a higher-ed CIO, it may be handy to cut through the marketing clutter to understand what exactly the cloud is.

In essence, the easiest way to understand what a cloud service is if you liken it to a public utility, such as the waterworks. As long as when you turn the tap on, the water flows, you needn't know where the water comes from. All you pay for at the end of the month is the amount

of water you consumed. You don't need to own, service or maintain the waterworks infrastructure to be able to consume the water. And to be fair, cloud services aren't exactly new—if you use any web-based application like Gmail (email) or Google Docs (document creation and collaboration), you're already using the cloud.

Categorise Your Data and Applications

Before you consider a cloud offering, an internal audit to identify what kinds of data exist within your institution is crucial to decide which parts can move onto the cloud first, and where the risks are highest. Classifying the data into high risk (IP, research or student records), medium risk (processes and policies) or



Decode the clutter surrounding the cloud to maximise your benefits from cloud computing

low risk (event information, course syllabus, class schedule) is a great first step in ensuring your move is right-paced.

Public or Private Cloud?

An important consideration to begin with is whether you'd be comfortable with your data and applications residing off-site in a provider's server or not. Called a public cloud, access to this cloud is via the internet and the entire infrastructure is far easier to set up and scale, with monthly billing ensuring you pay only for the resources you use. Of course, you run the risk of data leaks and security breaches, get largely undifferentiated services and don't really control

TECH SNIPPET | Springcleaning

Google springcleans stable; tweaks plans

Google has announced that it is making some tweaks to the cloud storage plans for all users, across Google Drive and Picasa services. The search giant also continued its spring-cleaning efforts, killing off a few more services. Google has integrated Google Drive storage with Picasa. Till now, users got 5 GB of free storage with Drive and an additional 1 GB for Picasa. Now, however, Picasa's storage is also a part of the 5 GB that users get with Drive, with the additional 1 GB being

removed. For the paid users under the current Google Drive scheme, the extra space that was paid for was added on to the free 5 GB space. Google, in its blog post, justifies these changes saying, "We believe this approach will make it much easier for users". These updates will be rolled out over the next few months, for all users.

Meanwhile, the spring-cleaning continues with certain services and features being discontinued.



where your data resides. Private clouds offer a possible solution, with higher levels of security and customisation, but bear in mind they bring in added costs for maintenance and infrastructure obsolescence.

Make the Case for the Cloud

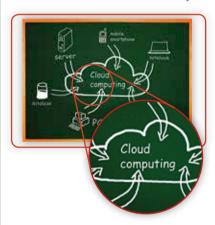
As with any technology infrastructure decision, moving to the cloud will have to make business sense for it to gain approval from stakeholders. Key aspects to highlight in the cost-benefit analysis for the cloud could include reduced software licensing fees, reduced IT manpower requirements and maintenance costs, along with fewer hardware purchases. Make your case based on your needs, and not on the need to just 'move to the cloud'. In general though, experts suggest that the smaller the institution, the more attractive cloud offerings will be compared with long-term IT infrastructure investments.

Consider the Risks

While the idea of moving from capex to opex for IT spend can tempt campuses to think cloud, be aware of the implications. Security, for instance. When discussing terms with the cloud provider, demand to know what safeguards are in place to protect your data over time, including policies around identification of vulnerabilities in the platform and their resolution. Or for that matter, what SLA (service level agreement) is in place

Business sense must dictate the decision to adopt cloud and not the fact that everyone else is doing it.

Before going on the cloud organisations must carry out a costbenefit analysis



Expert panel comprising team members from across functions must be instituted for cloud deployment

for service outages and how can you migrate out of the service if you're not satisfied—all of these terms must be carefully spelled out in the contract. Have a legal and technical team scrutinise the contract to protect your interests—most contracts are worded in such a fashion as to protect the vendor.

Gather the Expert Team

While you may be aiming towards a reduced IT infrastuture team, keep in mind that a panel of experts—your core team, comprising of cross-functional experts from purchasing, IT, faculty—must be involved around where your institution's cloud plans are headed. Right from vendor evaluation to roll-out, ensure the team has a say in the deci-

sion-making process and ownership of the initiative.

Get Buy-in

To reap the benefits of the move to the cloud, gaining pervasive support from faculty, students, and staff requires a lot of planning, coordination, and a touch of salesmanship. Communicate the new way of working and interacting via newsletters and workshops around the new cloud infrastructure. There's really no point in paying for a service per user when your users aren't interested in moving to the service!

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Open Courses From America Find Eager Audiences in China

Huge fan following for American professors, as Open Courses make them popular among students taking online courses **BY ANGELA CHEN**



Learning is Fun: Chineses students are finding free online Open Courses great learning resources

o Li, a Chinese postdoctoral fellow at the University of Michigan at Ann Arbor, wrote to a Yale University philosophy professor in 2011 with a strange request. Li had never met the professor, Shelly Kagan, nor had he ever attended Yale.

But while working on a doctorate in developmental biology at the Chinese Academy of Sciences, in Beijing, Li and his girlfriend had watched free online lectures of Kagan's philosophy course "Death" in the summer of 2010. They liked the course—and the professor—so much that when the two decided to marry, Li asked Kagan to surprise his future wife with "a sentence or two of congratulations on our marriage." Kagan did, and Li and his wife were delighted to hear from the professor whose open courses have made him a star in a country he has never visited.

As more and more courses are offered free to anyone with an Internet connection, some American professors have developed a huge following abroad, particularly in China. Another such scholar is Michael J. Sandel, a Harvard University professor whose highly popular political-philosophy course "Justice" was the first Harvard course to be offered free online.

He and Kagan are among the most recognizable American professors in China, says Cici Yue, a graduate of Nankai University, in Tianjin, and the Chinese Academy of Sciences. The courses are widely accessible there, especially after being subtitled in Mandarin by a group of student volunteers.

Five years after "Death" was first made available online, Kagan still receives e-mails from people around the world who watched the course and want to engage him in debate. "The number of e-mails has never abated," he says. "If anything, it's just gotten larger and larger, in a way that was a delightful surprise for me."

The most recent Google Analytics numbers, from July 2009 to January 2012, show that Kagan's videos on the Open Yale Courses Web site were receiving 3,000 hits per week from China, says Diana Kleiner, director of Open Yale Courses. The actual number of viewers is probably much higher: since the videos are licensed under Creative Commons, they are also available through third-party sites, such as Youku and Tudou, used by many Chinese students to gain access to the videos. Yale cannot track viewership from those sources. Kagan's course has received coverage from outlets such

as Xinhua, China's official news agency; China Daily; and China National Radio. Once, one of Kagan's colleagues, while in China, even saw a photo of Kagan in the English version of a national newspaper.

As for Sandel, he was named the most influential foreign figure of the year by China Newsweek, a state-run magazine, last year and commanded huge audiences at lectures he gave during a recent trip to China. Students staked out the lecture hall hours in advance, hoping to get a chance to hear him speak. In fact, when Sandel gives lectures based on the course, he needs to change the examples he uses because Chinese students are already so familiar with the original material.

One explanation for the huge following may be that these courses provide a glimpse into a very different educational system, says Jing Lei, an associate professor of education at Syracuse University. The Ivy League brand is also a big draw, and the courses help people improve their English.

But there's another important reason. Sandel and Kagan both believe that their popularity also stems from the big-picture questions that "Death" and "Justice" discuss. In China, where the educational focus is largely on science and

Online and traditional courses in China are professor centred rather than student-centered



engineering, attention to such questions has captivated students.

"I think there is a great hunger, especially among students around the world, to engage with big philosophical questions that matter to their lives," says Sandel.

Li, the postdoctoral fellow at Michigan, says Kagan's course "opened up new gates for me to understand our lives and deaths."

"My studies always focused on biology, so of philosophy I know little," he says. "I think it's something I can't learn from a lab, from an experiment."

He's not alone. Lei of Syracuse thinks that such open, online liberal-arts courses are shaping a new generation of Chinese students who are seeking intellectual interaction and want to ask questions.

"Critical thinking is very important to them," she says. "The traditional way of teach-

ing in the classroom is already outdated."

Consider the case of Yue, the graduate of Nankai and the Academy of Sciences. Although it's been several years since she first watched Sandel's videos, she still remembers that he begins the first lecture by presenting a moral dilemma and asking students for solutions. "When I listened to the lecture, I had to think about it, I had to analyze the situation and I had to give different propositions," she says. "In China, we tend to have standard answers in every class."

The difference between Chinese and American courses is apparent even in classes that cover the same material, says Ryan Sun, a Chinese student who graduated from Northeast Agricultural University and Shanghai Jiao Tong University. "Chinese courses on economics provide theories and knowledge, and we just accept this information," he says, "but in some American business and history courses I watched, the professor will ask so many questions.

"This doesn't happen in China"

The enormous popularity of American open courseware is starting to influence Chinese higher education, says Lei. Although Sandel's and Kagan's courses appear to be the runaway favorites, Chinese students also follow free online courses offered by American universities in subjects like economics, chemistry, and engineering, say directors of several open-courseware programmes.

Online and traditional courses in China are professor-centered rather than student-centered, and considered "boring" by Chinese students like Yue, who enjoyed Sandel's course in large part because of his engaging lecturing style. Many Chinese students who contact Kagan comment on his informal teaching style, the professor says. In the videos he sits on his desk, lectures without notes, and asks students to call him by his first name. "I certainly have gotten a number of e-mails from people in China saying, 'I've never seen anyone like you before in my

THE GLOBAL PERSPECTIVE

life, certainly not among my professors," Kagan says.

Now that open courseware has exposed Chinese students to different courses and lecturing styles, pressure is mounting on Chinese educators to make their own online courses, which are becoming increasingly widespread and more interesting, says Lei. Tsinghua University, one of China's most prestigious, has even started offering a version of Sandel's course. (He helped consult on it.)

But Yong Zhao, Associate Dean for global education at the University of Oregon's College of Education, notes that broad adoption of curricula focused on critical thinking would be difficult because the Chinese government still wants to control course content. Sandel, meanwhile, hopes to extend the popularity of "Justice" by enabling students in different countries to participate in his regular class lectures through video-conference technology.

"If we can create a dialogue, engaging with students around the world who may bring their own ideas and perspectives to these questions," he says, "I think we have a lot to learn."

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Russia Unveils a \$2-billion Campus on the Edge of China

Far Eastern Federal University has a new \$2-billion campus on Russky Island, near Vladivostok **BY ANNA NEMTSOVA**

ussky Island, the home of Russia's newest university, is not a hospitable place. The winds from the Pacific Ocean are incessant, and temperatures can plummet to minus 49 degrees. Winters are especially bitter, lasting six or seven months.

Yet Moscow has invested billions of dollars here in hopes of attracting some of the world's brightest young people and reviving a steadily shrinking local economy in this geo-politically sensitive region on the edge of China.

The government has spent \$20-billion constructing a convention

centre, banks, shops, and housing, among other things, along with three spectacular bridges across Vladivostok's several bays.

One of them, the world's longest cable bridge, leads to the newly built \$2-billion campus of Far Eastern Federal University. The campus formally opens next year,

though some students will begin to move to the island's dormitories next month. For now, they are taking classes at the university's old campus, in Vladivostok, with some classes probably starting on the island this winter.

The university, which is the result of a

merger of several smaller nearby universities, has an ambitious agenda: the Kremlin expects it will join the list of both Russia's and the world's best universities within a decade.

To that end, Far Eastern Federal will specialise in areas like Asian languages, marine biology, nanotechnology, and energy-conserving technologies. It will offer courses in both Russian and English, with many of its Russian professors undergoing required language training.

It hopes to attract top international professors and at least 30,000 students, 11,000 of whom would live on the island. It aims to lure students with local amenities, such as new swimming pools, as well as the promise of financial aid and an international education.

But the university has its share of skeptics. They point out, for one, that Far

bn has been paid for the construction of a convention centre, banks, shops and housing in the new campus

Eastern Federal has managed to recruit only 2,500 students this year, most of them from Russia, studying in buildings is scattered around Vladivostok.

The university also has "dramatically poor academic staff," with weak research records or low scholarly profiles, says the dean of the physics department, Alexander Molochkov.

Far Eastern Federal has began recruiting foreign faculty, reaching out to academics in the United States, Chile, Brazil, China, and South Korea, and in fields such as engineering and nuclear medicine. But, says Molochkov, the applicants so far "had terribly poor profiles. Right now not many scientists are willing to work at FEFU, mainly because we are still in the process of moving in."

Out of 80 applications, the university hired five foreign academics. And several internationally known scholars have agreed to come in as visiting professors. The university's president, Sergey Ivanets, a former deputy prime minister, also hopes to build deep ties to China and has brought in some visiting scholars from there.

Unhappy Faculty

Skeptics say that fancy amenities and glassy facades are not what makes a university great, and that the number of students willing to live on a mostly uninhabited island is small. Many professors from the smaller universities that merged to become Far Eastern Federal are upset about moving to a campus in which no labs have been built and where residents have to drink desalinated seawater. The head of the oceanology and hydrometeorology department, Boris Lamash, refuses to move to the island, commuting instead up to 90 minutes a day. Winters on the island are "unbearably freezing and windy," he says.

He also criticises what he calls "outrageous corruption" during the five years of campus construction. "Out of 680-billion rubles they spent on building our university, they could not find 3-billion rubles for a clean water-supply system," says Lamash.



Great Expectations: Fancy amenities and glassy facade do not a great university make!

The university has also not had much luck persuading students from the merged campuses to move to the island: Only 4,000 out of 17,000 have said they would be willing to do so.

Higher-education experts say that the university's success depends on strong leadership from an academic superstar.

"Only bright and famous scientists can make a giant bureaucratic monster like Far Eastern Federal show significant results," says Yuri Krupnov, director of the independent Institute of Demography, Migration and Regional Development, in Moscow. "I do not believe in Far Eastern Federal's quick success. There is a gray unknown figure from the ministry" leading the institution, Krupnov says.

Vladimir Kuznetsov, director of the university's School of Regional and International Studies and a former governor of the region, is more optimistic.

"I see potential for Far Eastern Federal. Hopefully one day, the intellectual center on the Russian Island will open a window to Asia for Russia, and democracy will come back to the country from here." In a year or two, administrators say, the laboratory building will be completed, and the university's schools of engineering, biomedicine, and natural sciences will be able to move in their heavy equipment.

Yet the university's future is far from certain. Higher education in Russia is notoriously corrupt, and rampant bribery has so far undermined much of what President Vladimir Putin has tried to do in shoring up the declining higher-education system through mergers and closures of institutions. Putin built Far Eastern "to mark Russia's presence in Asia as not fading but rising," says Yevgeny Yasin, a former minister of the economy and research director at the National Research University Higher School of Economics. "For now, it is too early to say whether this university has a future or not."

Reporting for this article was made possible by a grant from the Pulitzer Center on Crisis Reporting.

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Five Ways That edX Could Change Education

edX and collaborators are developing tools and models to study deep problems, such as understanding how people forget BY MARC PARRY



Live Laboratory: Free online courses are a testing lab for edX to study people and find out how the mind works

ince MIT and Harvard started edX, their joint experiment with free online courses, the venture has attracted enormous attention for opening the ivory tower to the world.

But in the process, the world will become part of an expensive and ambitious experiment testing some of the most interesting—and difficult—questions in digital education.

Can community-college students benefit from a new form of hybrid learning, based on a mix of local instruction and edX content? Can colleges tap alumni as teaching volunteers? Can labs be reinvented in the style of online video games?

edX and its collaborators are developing tools and teaching models to answer those questions. And they view the project as a means to study even deeper problems, like understanding how people forget—and creating strategies to prevent it.

"It's a live laboratory for studying how people learn, how the mind works, and how to improve education, both residential and online," says Piotr Mitros, edX's chief scientist.

That laboratory remains a work in progress. When a *Chronicle* reporter visited edX's offices here, in a low-slung brick building on the edge of the Massachusetts Institute of Technology campus, the front entrance lacked even a sign, and staffers had engineered a conference table and bookcase from empty cardboard boxes. But with a \$60-million investment announced in May and seven courses going live this fall, things are kicking into high gear. What follows, based on interviews with more than a dozen people affiliated with edX, is a closer look at what that could mean for students, scholars, and other colleges.

Engaging Alumni in New Ways— Robert C Miller had a Problem

His students were writing so much code that the teaching staff lacked time to read it all and give fast feedback. So Miller, an MIT associate professor who teaches software engineering and human-computer interaction, decided to try a new tactic: crowdsourcing. His work may help solve a challenge facing massive online courses: how to provide human feedback to thousands of students.

Under Miller's model, Web-based software called Caesar breaks homework submissions into chunks. A mix of teaching staff, fellow students, and alumni volunteers evaluates the code, which is also automatically tested by a computer.

BY PHOTOS.COM

Students then revise and resubmit their work. The human review is essential, Miller explains, because people can detect things that computers can't, like hidden bugs or poor design. "The future of online grading is going to be a mix of automated approaches ... and human eyeballs," says Miller. The class that has deployed Caesar is expected to go on edX as it expands. His project is one of several that highlight how technology can tap the altruism—and self-interest—of graduates. MIT alumni "are strongly motivated to find great programming talent," Miller says.

By helping to review code, they could both spot that talent and expose students to their companies. Caesar, used on the campus for the past year, has attracted MIT graduates working at companies like Facebook and Google.

Across the Charles River, at Harvard's School of Public Health, E. Francis Cook Jr. and Marcello Pagano are working on a similar idea. The veteran professors will teach a class on epidemiology and biostatistics this fall, one of Harvard's first on edX. Details are still being worked out, but they hope to entice alumni to participate, possibly by moderating online forums or, for those based abroad, leading discussions for local students. Cook sees those graduates as an "untapped resource." "We draw people into this programme who want to improve the health of the world," he says.

"I'm hoping we'll get a huge buy-in from our alums."

Reinventing Hybrid Teaching

In March, Tony Hyun Kim moved to the Mongolian capital of Ulan Bator, where he spent three months teaching high-school students a spinoff of the first edX course. The adventure made the young MIT graduate one of the first to blend edX's content with face-to-face teaching. His hybrid model is one that many American students may experience as edX presses one of its toughest goals: to reimagine campus learning.

On his own initiative, Kim brought over lab gear and mentored about 20 teenagers through the circuits-and-electronics class, which is based on a course normally taken by MIT sophomores. The edX version features video snippets and interactive exercises, and Kim used the free online content to teach in a style known as the "flipped classroom." Students watched edX content at home. At school, Kim spent hours each day reviewing material and apprenticing them through labs and problems.

The results were remarkable. Roughly 12 students earned certificates of completion. One 15-year-old, Battushig, aced the course, one of 320 students worldwide to do so. EdX ended up hiring Kim, who hopes to start a related project at the university level in Mongolia.

EdX is now preparing a bigger experiment that is expected to test the flipped-classroom model at a community college,

combining MOOC content with campus instruction. Two-year colleges have struggled with insufficient funds and large demand; they also have "trouble attracting top talent and teachers," says Anant Agarwal, who taught the circuits class and is president of edX. The question is how MOOC's might help community colleges, and how the courses would have to change to work for their students.

"MOOC's have yet to prove their value from an educational perspective," says Josh Jarrett, of the Bill & Melinda Gates Foundation, which backs the community-college project. "We currently know very little about how much learning is happening within MOOC's, particularly for novice learners."

Gamifying Labs

As edX tries fresh teaching models, it's also engaging the math muscle of MIT to push the boundaries of simulations.

When MIT students take the circuits class, they sit at a lab workbench and build with tools. Lab equipment can cost a fortune: An oscilloscope may run \$20,000.

Offering a comparable experience online is an engineering challenge. It must be fast, sufficiently open-ended, and simple enough to use without consulting "telephone-book-size manuals," as Agarwal puts it. Agarwal, a former director of

MIT's Computer Science and Artificial Intelligence Laboratory, has worked on this problem for years. "To me, the big hurdle to online learning was, How do we mimic the lab experience?"

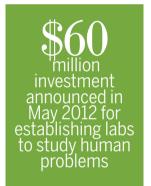
edX's first crack at answering that question can be heard in the violins that filled Agarwal's office one recent morning. The music came from his computer, where he input it through a circuit. It's one part of a simulated lab environment that lets students rotate components and build circuits as if they were "assembling virtual Legos on a desktop," Agarwal says. More Legos are coming. Eventually, edX students won't just build

circuits. They'll assemble computers, cellphones, and perhaps even bridges, all from digital parts. EdX points to video games as one model for its lab design.

"You see a lot of immersive experiences in the online gaming world, where people really get caught up in the mission," says Christopher J. Terman, a senior lecturer who helped build edX's lab and who is known as the "education czar" of MIT's department of computer science and electrical engineering. He adds, "When you think about what an immersive engineering experience is, we've really just scratched that surface."

Studying the Human Mind

Over time, enrollment in edX is expected to climb into the millions. That has major implications for research—an area that Mitros, the chief scientist, has been discussing with faculty members.



THE GLOBAL PERSPECTIVE

"Basically, everything that a student does is logged and can be mined by researchers," Mitros says. And the platform is rigged so researchers can show content to one group of students and not to another, and then test the results. So who might study edX? Anthropologists interested in online social interactions, for one. And psychometricians who work on test problems. But to Mitros, most exciting is the chance for once-impossible cognitive-science research. If you're like many people, you've forgotten much of your formal education. But studies show that if you repeat things—you take a freshman physics class, say, but continue to use those concepts throughout college—you retain them. "You can build a mathematical model of how memory works, based on data from a large number of students," he says. The results of such research could be applied directly to improving education.

Changing MIT

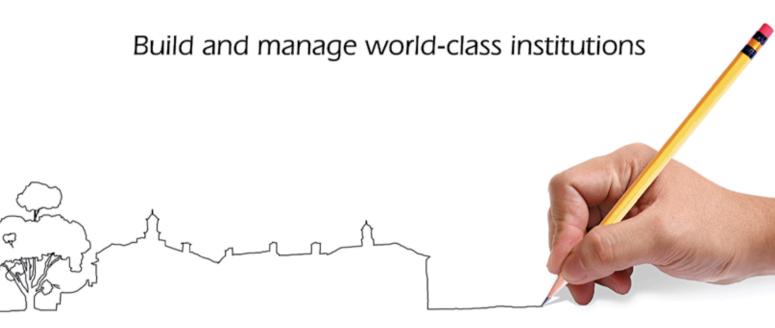
One question is how edX might improve elite universities, which are late to the e-learning game. In the spring, MIT tested the edX circuits class with about 20 on-campus stu-

dents. It was a hit: A majority said they would take another Web class.

Bethany LaPenta, a junior majoring in electrical engineering and computer science, enjoyed earning credit while studying on her own schedule. She found Web tests less stressful than in-class ones, and took the midterm in her dorm room. Another benefit: Students could rewind or fastforward their professor. Data showed MIT students tended to watch the videos at 1.5 speed, which makes voices sound almost like chipmunks but delivers information more rapidly. "I do want MIT to offer more online education," LaPenta says. To Agarwal, many aspects of e-learning are better than campus lectures, where attendance often plummets by semester's end. Future MIT students will experience a blended education, he says, with videos and auto-graded exercises online, and in-person time spent on labs and research and group problem solving. His prediction: "Ten years from now most of our classes will be using blended learning."

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TINE OUT VIEWS, REVIEWS & MORE



"Companies have no choice but to move up the value chain"

KSHAMA V KAUSHIK

Decoding India

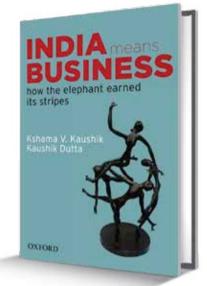
A look at the economic history of India and how it has shaped the way we do business here **By Sangita Thakur Varma**

EVEN THOSE with an interest in economics are rather put off by the thought of reading economic history. Given the 15-page bibliography, a casu-

al reader intrigued by the title may well feel tempted to put India Means Business—How the Elephant Earned its Stripes back on the bookshelf. But ignore the rather textbookish package, and the 339 pages in hardback make for an interesting read. Chartered accountants who run a research think-tank, authors Kshama V Kaushik and Kaushik Dutta have done an exemplary job as economic historians setting the context of Indian business. As India opens up to the world, the book becomes a collector's edition for any company wanting to do business here.

What we learn in the process is that India has always meant business, no pun intended. The story

starts at the beginning of the 18th century when the Indian subcontinent had a flourishing overseas trade. The painstaking research of the authors is obvious but nowhere does it interfere with the narrative to make it a dull and drab read of history. So, we learn about the Zaveris of Ahmedabad who still continue in their ancestral jewellery trade, the Travadis of Surat and



Hiranand Sahu of Patna, who were *Sahukars* or moneylenders. The Elephant called India was trumpeting proudly. But the advent of the British traders on its shores changed all that.

Hundi and arbitrage go back to the 18th century and if it were not for the House of Jagat Seth founded by Hiranand Sahu and other such native bankers and merchants, the British perhaps would not have succeeded in setting up their empire. Their conspiring, you read, led to the Battle of Plassey and the victory of the English. It is such intriguing tidbits that make the book interesting. The authors' insights into Indian family businesses and their knack for survival through the rough and tumble of politics is interesting. Innovation is the buzzword in today's world. But India has yet to explore its strengths in this field. That it certainly does not lack talent is evident. Is it then because Indian culture is not comfortable with the idea of innovation for commercial consumption? The authors take the reader through a number of theories to conclude that Research & Development is a work in progress in India.

The chapter on successful business practices of India is a must-read to understand this enigmatic country. After a recce of India down the ages, the authors confront the moot question: Is India a Sustainable Dream? The answer—yes, of course!.

AUTHOR: Kshama V Kaushik, Kaushik Dutta **PUBLISHER:** Oxford University Press

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The book provides practical guidance on how Appreciative Inquiry (AI) can be applied in higher education and make an impact on

the next generation of positive change makers. It talks about how AI can harness the drive and imagination of all.

Author: Jeanie Cockell, Joan McArthur-Blair

Publisher: Jossey-Bass

Price: \$40.00





GADGETS



Micromax Introduces Funbook Talk P350

Micromax has introduced a new Android-based budget tablet called the 'Funbook Talk' P350. The Funbook Talk runs on Android 4.0 Ice Cream Sandwich operating system and is powered by a 1 GHz Cortex A8 processor. The Funbook Talk also supports voice call and comes with built-in 2G connectivity. The device comes preloaded with various applications including Picasa, YouTube, Document Viewer and Google Play store.

Price: ₹ **7,199**



ADATA's DashDrive Elite HE720 hard drive

ADATA Technology has announced the launch of the DashDrive Elite HE720 external hard drive, compatible with USB 3.0. Initial launch capacity of the hard drive will be 500 GB. It has 8.9 mm thickness and comes with brushed stainless steel surface, scratch resistance features. The drive also has a bright blue LED indicator for indicating power and data transfer status. It comes with a 'One touch backup' feature, which automatically backs up and synchronises data with one touch.

Price: ₹ 6.000

TECH INSIDER | TUSHAR

Windows 8: Pause Before the Plunge

IT'S BEEN a long time coming, and represents one of the most radical redesign of the desktop operating system we've come to love (and hate) by the name of Windows. Here are the key considerations you should keep in mind before you take the plunge.



NEW HARDWARE...

Windows 8's prowess with touch input means you can pick up a tablet and just plug it into a dock connected to a keyboard and larger display when you're not

on the move, just as you can with a laptop. Tablets will come in two variants—those powered by Intel and AMD chips and those powered by mobile processors that are commonly found in other tablets and smartphones. The former will have one big advantage over the latter (also called Windows RT tablets)—they will run all existing Windows applications, while the RT devices will only run new-style apps or the desktop apps that have been specifically modified for Windows RT.

...OR UPGRADE?

You don't need a touch tablet to enjoy Windows 8, an existing Windows 7 capable PC with 1 GHz processor and 1 GB RAM should suffice. The installer will even migrate your programs, windows settings and user accounts/files if you're upgrading from Windows 7/ Vista or XP, but just how much gets migrated depends on which version you're upgrading from. My experience with Windows 8 on a non-touch device has been unsettling at best. The learning curve is steep and navigation within the apps isn't obvious—use it and you'll realise that there are just too many known unknowns here, so I'd highly recommend that you have a look at this guide at (http://bit.ly/UQkrdq) to learn your way around the new OS.



A self-confessed gizmo-holic, Tushar Kanwar is a technology columnist with the *Telegraph* and *Business World*, and contributes to a variety of technology and lifestyle publications. Tushar's interests lie at the intersection of consumer technology, internet trends and products that change the world.

LEGACY

"Neither religion nor ideology can take human beings very much closer to a visionary state of perfection"-Kakkadan Nandanath Raj

Kakkadan Nandanath Raj



(1934-2010)

1969-70

Vice Chancellor, Delhi University

> 1971 Set up Centre for

Awarded the Padma Vibhushan

Development Studies in Kerala

The Man behind Five Year Plans

akkadan Nandanath Raj, an Indian economist who played an important role in India's planned development, drafting sections of India's first Five Year Plan was born on May 13, 1924 in Thrissur district, the Cultural Capital of Kerala.

KN Raj did his BA from Madras Christian College and went to London School of Economics for higher studies. He began his professional career as a teacher at LSE and then moved on to become an assistant editor in a newspaper in Sri Lanka. Later, he joined Delhi University, where he was Professor of Economics and also Vice Chancellor from October 1969 to December 1970, spending a total of 18 years there. During that time, he was instrumental in setting up the Delhi School of Economics.

Dr Raj worked out a plan to raise India's rate of savings in the post-Second World War period when the country was in need of foreign aid. He computed India's Balance of Payments for the first time for the Reserve Bank of India. He was a Keynesian economist. Strong at analysis and methodology, Raj's objective always remained the promotion of equitable development of the country and the welfare of the common man. He had always defined the objectives, including the political ones, of the policies and programmes he recommended.

One of Raj's interesting stories is about his meeting with Prime Minister Jawaharlal Nehru in 1950. He was called by the PM for an explanation on his proposal of a slow growth rate for India in the First Five Year Plan. Raj then gave Pandit Nehru a choice between democracy and a fast rate of development. Nehru chose the obvious answer—democracy. The reason behind his recommendation was based on Soviet Union's state where the limited democracy collapsed and Stalinism followed.

His love for teaching made him resign at Planning Commission to become a professor at Delhi University and later one of the dignitaries at Delhi School of Economics. He introduced a number of effective reforms at DSE and DU. Though his tenure as vice chancellor is said to be the worst phase of his career—he got trapped in the political and communal muddle of the campus—his role was reduced to that of maintaining law and order in the university. Soon after he accepted the offer from the then Chief Minister of Kerela and went to Thiruvananthapuram to build the Centre for Development Studies. Under his leadership, the institute achieved international reputation. He died of a cardiac arrest on February 10, 2010. Under his wishes, his eyes were donated. He was a ruthless critic of communal politics. He famously said: "Both religion and ideology can help to some extent, if visualised with adequate realism, to take humanity forward to a more satisfying state than now."

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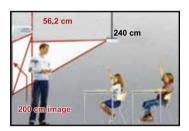
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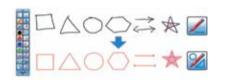


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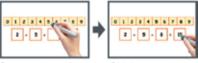
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Adobe Flash file: adding decimal masses



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