Newspaper Clips
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The IITs have lost their way

The ambience within disregards basic science in favour of jobs in finance or software

ANURAG MEHRA

INDIA IN TRANSITION

The Indian Institutes of Technology were founded almost five decades ago with the objective of providing technological leadership to a new and resurgent India, driven by Jawaharlal Nehru's deep commitment to science-led development.

Whether they provided technological leadership to India or not remains debatable given the large numbers of their (under)graduate students who have migrated abroad or shifted to non-technical careers.

India has deviated substantially from the Nehruvian vision. The undergraduate education at IIT and the academic culture inside the institutes are being reshaped to an unprecedented degree by factors that operate at points of entry and exit—the former related to the joint entrance examination (JEE), and the latter arising from placement patterns dominated by non-technical jobs.

Early start

The core challenge at the entrance level has to do with the overt and subtle effects of coaching factories. Children are often enrolled for four to five years of coaching, starting as early as middle school. The result is much greater burnout, loss of creativity, and eventual loss of interest in science and technical subject matter, though coaching helps overcome the multiple deficiencies of school teaching in India to some degree.

However, the negatives become apparent when students enter high school, and succeeding in competitive examinations becomes an all-consuming goal. At one level, the sheer volume of work leaves little time for other interests and the joys of a normal adolescent life. The regimentation of solving large 'banks' of problems leaves little room for creativity or curiosity.

Students become adept at learning how to answer questions but are at a loss on how to ask questions — especially ones that matter. The intense, competitive pressure creates an atmosphere ripe for generating severe anxieties, and often a deep sense of inadequacy and humiliation. To be sure, this hypercompetitive experience is not different from the ordeal that students in several other Asian countries undergo. Once they enter the IITs, many students desire to rediscover normalcy in some sense.

The initial question students confront is why and what should they learn. First, unlike in the past, almost everyone plans to take a job and not go to graduate school. Second, the jobs they aspire to are in finance, consulting, software, and more generally, 'managerial' positions. These jobs rarely have any subject-related technical content but their pay packages are substantially higher than for technical jobs. There are far fewer openings for core technical jobs.

Jobs and advice

Most job offers come from business analytics firms and finance companies where the role is to crunch numbers on spreadsheets. While companies in these service sectors are usually satisfied with their IIT recruits, students, especially ones with middling academic records, are happy to do this, and usually enrol in an MBA programme later on. They have a certain facility with maths (which IIT-JEE selects for), are tech-savvy, and fairly quiescent as long as the job pays well.

The "greed is good" mantra that students pick up while dreaming about pay packages also comes loaded with 'legendary' tales about how an alumnus made so much

Money on your mind And not science education ANDREY_POPOV / SHUTTERSTOCK.COM

Out of the small number of students who end up taking core jobs in their technical branch, most are often embittered about the lower paying — and lower status — technical jobs. From a student's perspective, there is little point in mastering technical material relating to, say, mechanical, chemical, or civil engineering, or even physics or chemistry.

As students make their way through the first year, they run into that great fount of established wisdom: seniors. They rapidly pick up tips on what kind of jobs pay best, the general irrelevance of scientific and technical material, how to traverse the academic system with minimal effort and the importance of participating in all kinds of personality development activities (the crowning glory being a 'student festival' manager).

money in his first job or which startup was sold for how many millions to a bigger software company. These legends merely serve as a rationalisation for shirking academic work and using unfair means. As a result, students in their second year are writing business plans or planning to do some project or short course in business school while developing a disdain for learning technical subjects and basic fundamental science material such as physics, chemistry, and mathematics.

Underwhelming institutions

In the end, only those few students who have, relatively speaking, not been affected by this discourse retain the ability to continue building their technical knowledge. Sadly, poor teaching and lacklustre faculty have also contributed to this apathy.

Viewed from the outside, the IITs have managed to retain a glow because every graduating student finds a placement; students rarely

remain unemployed. However, that says more about the quality of the rest of Indian higher education than the IITs. The reality is that these institutions are producing engineers, using large amounts of public money, who rarely use the knowledge acquired in their IIT education.

One could argue that a large number of students graduating with engineering degrees in the US also end up in non-technical fields, prized more for their analytical skills than domain knowledge. However, unlike US institutions, the IITs have shown very little will and the means to tackle student disinterest and faculty apathy, and quell the entire academic malpractices syndrome.

India's policymakers need to ask some hard questions. If the IITs are to regain an ambience that generates a zest and excitement for learning and knowledge creation, how many science and engineering graduates does India need in the classical engineering disciplines? Can a more interdisciplinary restructuring of the undergraduate programme reignite interest in academic work?

Over the long term, the questions are even harder: How does the country drastically overhaul primary and secondary education, given that what happens upstream is bound to affect the flow downstream? How does India build a more dynamic manufacturing sector that will facilitate better use of the immense technical talent the IITs were set up to provide?

IITs misconstrued circular as an encroachment on autonomy: UGC

Hindustan Times (Delhi)

NEW DELHI: The university grants commission (UGC) on Monday said that it was not encroaching on the autonomy of IITs while issuing a clarification and justifying its position on the specification of degrees, quoting section 22 of the UGC Act, 1956. The commission's clarification comes in the wake of a controversy that it was attempting to intrude into the autonomy of the IITs.

Issuing the clarification, the commission said, "The UGC has recently sent a circular to all degree-awarding institutions informing them about the specification of degrees which have been notified in the gazette of India on July 5, 2014 with the approval of the government of India. Unfortunately, the aforementioned communication of the UGC has been misconstrued as an encroachment on the autonomy of Institutions of higher learning, especially the IITs."

Detailing the sections and sub sections of UGC Act, the commission said, "Save as provided in sub-section (1), no person or authority shall confer, or grant, or hold himself or itself out as entitled to confer or grant, any degree."

The IIT directors however have their own opinion.

"We report to the visitor and the visitor has to take a stand on this. Only if the visitor feels, we will bring it to the Senate. The IITs have their own act and we are regulated by our Senate. There has never been a need to consult with the UGC so far," said an IIT director.

The provision for specification of degrees by the commission was a conscious decision taken by the central government for a number of reasons which not only includes ensuring uniformity in terms of the awarding of degrees but also for the purposes of employability and mobility of the students across the country, the UGC said.

UGC on IIT controversy: Letter misconstrued as encroachment

Anubhuti Vishnoi New Delhi, August 25, 2014 | UPDATED 23:00 IST

http://indiatoday.intoday.in/story/ugc-on-iit-controversy-letter-misconstrued-as-encroachment/1/379021.html

University Grants Commission (UGC) on Monday clarified to HRD ministry that its letter to the 16 IITs should not be "misconstrued as an encroachment on the autonomy of Institutions of higher learning especially the Indian Institutes of Technology (IITs)."

"It may not be out of context to mention here that the University Grants Commission is the only statutory body in the country to specify degrees in all domains of knowledge including Engineering, Medicine, Agriculture, Exact Sciences, Humanities, Social Science, Languages, etc," the UGC communication says.

Reacting to the IIT controversy, UGC Chairman told India Today that there is "no question of any encroachment".

"Every university is also a statutory body but there is a procedure to be followed…no other body except the UGC can specify degrees…we are a conduit between the government and the institution and no one can award a degree that is not approved", Prof Ved Prakash told India Today.

Clarifying that "the responsibility for specification of degrees to be awarded by different sets of institutions has been entrusted with the University Grants Commission (UGC) through its Act, 1956 in all domains of higher education," the higher education regulator has further quoted Section 22 of the UGC Act, 1956, which provides for "Right to confer degrees".

As per Section 22, "The right of conferring or granting degrees shall be exercised only by a University established or incorporated by or under a Central Act, A Provincial Act or a State Act or an institution deemed to be a University under section 3 or an institution specially empowered by an Act of Parliament to confer or grant degrees.. Section 22(3) adds that for the purposes of this section, "degree means any such degrees as may, with the previous approval of the Central Government, be specified in this behalf by the Commission by notification in the official Gazette."

The move- that follows within days of the Commission asking the prestigious Indian Institute of Science (IISc) Bangalore to make changes in its four year undergraduate course- has caused a furore in the IIT system with many IIT Directors and academics protesting against it.

The apex higher education regulator- University Grants Commission- is learnt to have written to all Indian Institutes of Technology (IITs) asking them to ensure that the degrees they are offering are aligned to those recognized by them.

The Commission had sent to all IITs a copy of the 5th July 2014 Gazette notification it issued after the Delhi University Four Year Undergraduate Programme (FYUP) controversy listing out all the recognized degrees. This communication would imply that four year Bachelors of Science degree progarmmes offered at IITs- IIT Kanpur and Kharagpur among others- would be illegal.

The UGC has further argued that if a university/institution of national importance wishes to award a degree other than the one specified by the UGC then it can approach the education regulator with its proposal with proper justification. "The proposal is duly examined by the UGC and accordingly if needed the list of specification of degree is upgraded after obtaining the concurrence of the Government of India", the UGC has said on the issue.

The regulator has further sought to explain that the specification of degrees by the University Grants Commission was a conscious decision taken by the Central Government to ensure the uniformity in terms of award of degrees and also for purposes of employability and mobility of the students across the country.

Mail Today ND 26/08/2014 p-7

UGC sticks to guns on IIT letter amid row
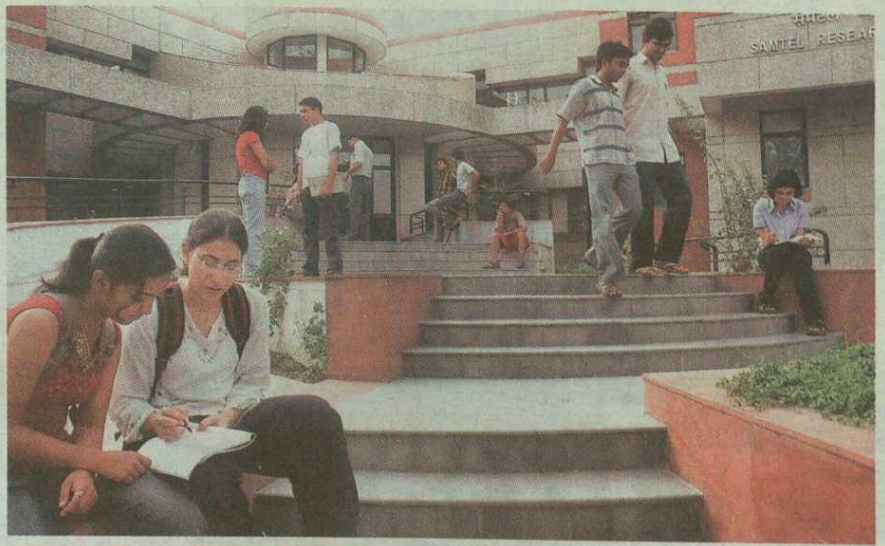
The UGC has been criticised for its letter to all 16 IITs, asking them to ensure that their degrees are 'aligned' with those recognised by the regulator.

By **Anubhuti Vishnoi**
in New Delhi

DEFENDING its position as the custodian of all degrees given out by educational institutes in India, the University Grants Commission (UGC) on Monday wrote to the Human Resource Development ministry saying its letter to 16 IITs should not be "misconstrued as an encroachment on the autonomy of institutions of higher learning".

"It may not be out of context to mention here that the UGC is the only statutory body in the country to specify degrees in all domains of knowledge, including engineering, medicine, agriculture etc.," the UGC has written.

The UGC has been attracting all round criticism for sending a missive to all 16 IITs last week asking them to ensure that the degrees they offer are "aligned with" those recognised by the regulator.

Coming days after the UGC asked the prestigious Indian Institute of Science (IISc), Bangalore, to make changes in its four-year undergraduate course, the move was criticised by several IIT directors and academics. Registering their protest, the IIT authorities argued that they the institutes are governed by their own legislation, the Institutes of Technology Act, 1961, and not the UGC Act, 1956.

Reacting to the controversy, UGC chairman Professor Ved Prakash said there is "no question of any encroachment".

UGC chairman Prof V. Prakash

"Every university is also a statutory body, but there is a procedure to be followed... no other body except the UGC can specify degrees. We are a conduit between the government and the institution, and no one can award a degree that is not approved," he said.

The UGC has also argued that if a university/institution of national importance wishes to award a degree other than the one specified by the UGC, then it can approach the regulator with its proposal and a proper justification.

Don't fix it

The UGC must leave the IIT ecosystem alone

THE University Grants Commission (UGC) is clearly unfamiliar with the Euclidean maxim that parallel lines never meet, or it would not have asked the Indian Institutes of Technology (IITs) to "align" their courses and degrees with those it recognises. Members of the committee, led by Anil Kakodkar, which suggested improvements to IITs, now protest that they are centres of excellence beyond the ambit of the UGC, which they accuse of regulatory overreach. Actually, this is more than linear overreach. It is a category mistake, a blunder that logicians abhor.

The NDA government's focus on jobs and skilling has highlighted the parallel streams that higher education has branched into. For the majority of students, it now means certification, vouched for by the standardisation of evaluation processes. Its objective is to create reliable workers who can enliven the job market and fuel growth. On the other hand, the most valuable outcomes of technical education are research and innovation. It is powered by creativity, which rejects standards and benefits from institutional autonomy. The Kakodkar Committee, set up in 2010, had recommended that centres of excellence be liberated from the educational bureaucracy. The board of governors of each IIT should have complete control over the teaching process, ranging from course design to expenditure management, human resource development and rules governing staff and payroll.

The first NDA budget announced the commissioning of five new IITs, and its commitment to creating more centres of technical excellence may persist in budgets to come. Amid concern that increasing the number of IIT campuses might dilute the quality of education and research, there is an opportunity for the government to signal that expansion would not be cosmetic. In line with the Kakodkar Committee recommendation to create an extensive PhD programme, it could give IITs the right to invest capital and human resources as they wish and involve private enterprise to create innovation ecosystems across institutions. It should not matter if their vision diverged widely from that of the UGC. The latter was established by an act of Parliament. So were the IITs, as their directors often point out. Both institutions were designed for independence and should remain free.

Indian Express ND 26/08/2014   P-1

Fault lines open: UGC cites 1956 law to assert itself, five IIT directors object

RUHI TEWARI
& NAVEED IQBAL
NEW DELHI, AUGUST 25

UNDER fire for its communiqué to the Indian Institutes of Technology (IITs) asking them to "align their courses and degrees with the ones recognised by the University Grants Commission (UGC)", the apex education regulator Monday issued a clarification, stating that its communication had been "misconstrued" and that it had the "responsibility of specification of degrees". With the UGC sticking to its stand and the directors of at least five IITs emphasising that the institutes fall outside its purview, fault lines seem to have been drawn.

"Unfortunately, the aforementioned communication of the UGC has been misconstrued as an encroachment on the autonomy of institutions of higher learning, especially the IITs. In this connection, it may be clarified that the responsibility of specification of degrees to be awarded by different sets of institutions has been entrusted with the UGC through its Act, 1956 in all domains of higher education," the clarification, issued late Monday evening, stated.

The note said that the UGC has been using a "dynamic process for specification of degrees since 1956" and "is the only statutory body in the country to specify degrees in all domains of knowledge, including engineering, medicine, agriculture, exact sciences, humanities, social science, languages, etc".

"Where is there any question of encroaching upon the authority of IITs or any other institution? We have been

given the authority of specifying degrees by the Government of India. It is a question of ensuring uniformity in nomenclature of degrees. It is a question of facilitating mobility of students from one institution to another. It is a question of ensuring employability. After all, who else specifies degrees in this country? The UGC has been doing it since 1956," UGC chairman Ved Prakash told *The Indian Express*.

The IITs are governed by the Institutes of Technology Act, 1961, which declares them as "institutions of national importance", and lays down their powers, duties and framework for governance.

"Every university has an Act, doesn't it? Each university is a statutory body whose autonomy should not be encroached upon. This is not about the IITs alone. If the IITs have the authority to specify their degrees, then good," Prakash said.

The Indian Express had reported how members of the Anil Kakodkar committee, which was set up to recommend autonomy measures for IITs, had criticised the UGC's latest move, claiming that the autonomy of the institutes ought to be protected.

Meanwhile, stating that the President of India, who is also the Visitor of IITs, "will have to take a call" on the issue, the directors of some in-

Fault lines open

stitutes have said that until now, there has been "no requirement of clearance from the UGC on any matter concerning the IITs".

Reacting to the UGC's clarification, IIT Kanpur director Prof Indranil Manna told *The Indian Express*, "We are empowered to run our courses through our senate and our statutes. This is clearly stated in the IIT Act. If there is to be a change in this, the IIT council will have to take it up... In my opinion, UGC guidelines only apply to institutes under the commission and the IITs are clearly outside their ambit."

IIT Ropar director Prof M K Surappa emphasised the autonomous nature of the institutes and said, "We are funded directly by the HRD Ministry and do not need any clearance from the UGC." IIT Kharagpur director Partha Pratim Chakraborty, who received the UGC communiqué last week, said that he has "written to the concerned authorities" stating his position on the notification.

Directors of IIT Delhi and IIT Bombay had earlier specified that since the IITs and the UGC are two separate systems, "they are totally disconnected with each other". Thus, unless a change is made to the IIT Act, no UGC guideline shall apply to the IITs, they said.

Senior officials of these institutes also claim that since IITs do not depend on the UGC for funding or any other requirement, it is not binding on them to comply with the commission's orders.

"The provision for specification of degrees by the UGC was a conscious decision taken by the central government for a number of reasons, which not only includes ensuring the uniformity in terms of award of degrees, but also for the purposes of employability and mobility of the students across the country," the UGC clarification stated.

Times Of India ND 26/08/2014   p-15

After stoking controversy over 3-year UG degree, UGC falls silent

Akshaya.Mukul@timesgroup.com

New Delhi: University Grants Commission has gone into silent mode after stoking a controversy by asking IITs/NITs and all higher educational institutions to adhere to three-year undergraduate programme in non-technical courses and give out only approved degrees.

Even as UGC chairperson Ved Prakash did not respond to email questionnaire or text messages, sources said the Commission's missive to institutions is part of its growing battle with the HRD ministry. UGC, a source said, was not comfortable with the idea of scrapping Delhi University's Four-Year Undergraduate Programme but had to ac-

UGC chairperson Ved Prakash and Union HRD minister Smriti Irani

quiesce as the government had made up its mind.

"The commission and chairperson had to literally go against their own words about FYUP. Before the new government decided to scrap FYUP, UGC had endorsed the new programme. While UGC is within its right to send communication to educational institutions, it has been done now to drag in the HRD ministry. The ploy seems to have worked as the Commission has gone silent and the ministry is left defending the communication," a UGC source said.

On its part, the HRD ministry denies it had any role in UGC's action and says the Commission did not inform them about the letter to educational institutions. Ministry sources say that though the UGC's communication in itself is not an attempt to undermine the autonomy of IITs, they admit UGC could have handled it better. For instance, sources said instead of sending generic letter to all institutions, UGC could have verified nomenclature of degrees and written only to those institutions that had unapproved degrees. In the process, sources said, the commission also forgot that in certain cases, as in Symbiosis University, UGC itself had approved four-year course in liberal arts. In case of IITs, UGC should have only pointed out that except for B.S course in IIT, Kanpur that needed to change the nomenclature to B.Sc, all IIT degrees are in order.

Meanwhile, HRD ministry's committee that will review the working of UGC will meet on September 5 and 6. Headed by former UGC chairperson Hari Gautam, the review committee has called VCs, educationists and other eminent people for brainstorming.

IISc slides 130 rungs in global varsity rankings

Chethan.Kumar
@timesgroup.com

Bangalore: On an average, at least 10 institutions have overtaken Indian Institute of Science (IISc) every year in the global ratings since 2003, even though it continues to be the only one from India in the top 500. It has dropped 130 ranks in 11 years.

Just like in 2013, the institute continues to be ranked among the top 500 institutes in the Academic Ranking of World Universities (ARWU) 2014 done by the Center for World-Class Universities at Shanghai Jiao Tong University. However, in 2013, IISc was close to 300, while its ranking is now near 400, with over 50 institutes having overtaken it.

The main building of the IISc

ARWU ranks universities on the basis of academic and research performance, including highly cited researchers, papers published, indexed in major citation indices and per capita academic performance.

When the IISc first made it to ARWU's list of top 500 institutes in 2003, it was in the 270-275 range. A decade later, it's near the 400 mark, dropping 130 ranks.

ARWU attributes this to the consistent drop in performance in subject-wise ranking. The institute slid considerably in many streams, most spectatularly in chemistry, computer science and natural sciences.

IISc sources, however, credit other institutions for having performed well and feel the quality at the institute hasn't really dropped. IISc director professor Anurag Kumar argues that the results of the efforts put in the past decade will yield results in a couple of years. Former Isro chairman U R Rao, though, said it would be a matter of concern if there was indeed a fall in quality.

Faculty shoots e-mail against IIT-I director

TNN | Aug 25, 2014, 11.51 AM IST

INDORE: With tenure of present Indian Institute of Technology, Indore (IIT-I) director Pradeep Mathur coming to end in December this year, a section of faculty and staff of premier technology institute have shot off e-mails to Union HRD minister Smriti Irani raising concerns over his functioning.

Fearing renewal of Dr Mathur's term as director, faculty members from institute sent e-mails, copies of which are with TOI, seeking attention of the minister on issues, including land transfer for permanent campus, faculty recruitment, skewed distribution of funds, extravagance, faculty promotions, spending in convocation 2013 and library purchases.

One of e-mails states: "Most heads and deans are unhappy with existing regime, but due to fear of retribution they hold themselves back. We request you to meet with faculty members individually instead of meeting in public platforms for knowing real picture. All allegations can be verified independently, but someone has to bell the cat. We wish to remain anonymous as he is known to be quite revengeful and can harm us."

The aggrieved faculty members have raised questions over his alleged stay in hotels in the city even though the institute was paying house rent for his plush bungalow. Expenditure on his frequent foreign visits too has been questioned in another e-mail sent to the Union minister.

Another e-mail states ? All purchases at IIT-Indore are from Unicom Computers. Rs 4 crore was spent to conduct convocation in 2013, whereas suggestion by Engineers of Estate Section, showing way to organize programme for Rs 10 lakh was deliberately ignored.

In June, the IIT-I had shifted its one block to permanent campus site at Simrol, which faculty allege is an exercise in image building. "There is no proper alternative space for instruments or the personnel. Staff members are transferred from one section to another section arbitrarily and memos are issued on a daily basis to senior staff members," the e-mail stated.

Refuting all allegations mentioned in e-mails, IIT-I director Pradeep Mathur told TOI on Sunday, "All allegations are baseless. None of faculty member has ever raised issues with IIT forum, which takes up such complaints. The data and facts are not true. I am open to all kinds of investigation."

Use skills to ensure country's growth: Super30 founder to IIT students

http://economictimes.indiatimes.com/news/politics-and-nation/use-skills-to-ensure-countrys-growth-super30-founder-to-iit-students/articleshow/40876371.cms

'Super30' coaching centre of Bihar, Anand Kumar, has appealed to students of IITs to devote their skills for the development of rural areas of India instead of leaving the country in search of greener pastures.

"The time has come for (students) to share their knowledge and skills for the benefit of their countrymen instead of pursuing career goals and personal success. It is the need of the hour," Kumar told the students of IIT, Kanpur, here during an interaction with them last evening.

Talking about the pattern of the IIT-JEE, Kumar said there was a need for changing the same as it was not favourable for students from the weaker sections.

As to Super30, Kumar said that the celebrated coaching system would be now expanded to include Uttar Pradesh.

The Super30 programme selects 30 meritorious candidates each year from economically-backward sections of society and trains them for the IIT-JEE, the examination for entrance into the premier Indian Institutes of Technology.

New IIT's shouldn't be started in haste: CNR Rao

India cannot become a global power in science unless it improves the quality of research, says professor CNR Rao, Bharat Ratna awardee in an interview with Sanchayan Bhattacharjee

As per Budget 2014, the government has allocated funds for new IITs. What are your views on this?
The Government has announced that they will have five more IITs. I hope that these institutions are started gradually and not in haste so that each new IIT has the necessary facilities and infrastructure. I say this because most of the eight new IITs that were started in 2008-2009 are still not well established. They do not have proper buildings, campuses and other facilities. IITs are supposed to have a special culture and an environment which brings out the best in students. This can only be done if there is adequate preparation.

It is often said that students use the IIT brand name more than the knowledge imparted by the institution. Comment!
I have always been against a large number of IIT graduates going for management. This has been a great loss to the country. I feel that they should remain engineers. IITs themselves should not have started management courses.

In a recent interview, you mentioned that 'science taught in schools is boring'. How to make it interesting?
Science in schools is boring because what they impart is old fashioned and taught poorly. Chemistry for example, is not about just memorising a bunch of equations or methods of preparations. There are a number of interesting and exciting things happening in chemistry and yet we never bring this out in the classroom. This is also true of physics and other subjects. There are a few institutions where good teaching happens, but that is after school level. At school level, major changes are yet to occur in the way we teach science.

Please comment on the research scenario in India.
As far as the research scenario is concerned, there are always few individuals and a few institutions, which are doing well, but the overall situation is sad, both in terms of quality and quantity. We have to increase the quantity of research output. Some of our neighbouring countries are doing extremely well in this regard. However, it is more important to improve the quality of research. We have to pursue competitive research comparable to the best in the world. Unless we do this, India will not become a global power in science in the next 20 years or so. The government is providing some funds for research, but they have to increase their contribution. It is important that our industries also contribute to science. In most of the advanced countries, industries contribute almost 50 per cent of the science budget.

Apart from the funding, how else can students and institutes improve the frequency and quality of research work?
The most important thing for most researchers particularly the young ones, is to have perseverance, doggedness and dedication to pursue what they want to do. Unless one has these qualities, individuals and institutions cannot succeed. There is a need for people who want to succeed in science and other disciplines by doing outstanding research and teaching. We as a society, have to provide the environment for carrying out good research and high quality innovation.

VVS

Business Line ND 26/08/2014
P-15

'One Day @ IIMB' experience on October 5

OUR BUREAU

Bangalore, August 25

The Indian Institute of Management Bangalore (IIMB) plans to provide a 'One Day @ IIMB' experience to celebrate the Joy of Giving Week (JOGW) on October 5 this year.

'One Day @ IIMB' is the flagship event of the larger JOGW celebrations at IIMB and the day will finally be complete with all the exciting experiences that make up a typical day in a student's life.

For this management school experience, applicants need to present their bids by September 15, 2014.

All proceeds from this event are donated to charities.

'One Day @ IIMB' is the flagship event of the larger JOGW celebrations at IIMB. For this experience, applicants need to present their bids by September 15, 2014.

The event is being organised by Vikasana, the social service initiative of the institute.

Fund raising

During the celebrations, there will be a series of events throughout the week (October 2-8) with the aim to spread joy while raising funds for social initiatives.

Times Of India ND 26/08/2014 p-19

Scientists grow organ from scratch

Create Working Thymus In Mouse Through Cells Produced In Lab

Kounteya.Sinha@timesgroup.com

© Jeff Wheeler/ZUMA Press/Corbis

London: Scientists have for the first time grown a fully functional organ from scratch inside a living animal by transplanting cells originally created in a laboratory.

The advance could aid development of lab-grown replacement organs in the future.

Scientists at the MRC Centre for Regenerative Medicine at the University of Edinburgh created a working thymus, a vital component of the immune system — its "nerve centre" located near the heart — with connective tissue cells called fibroblasts from a mouse embryo which were converted into a completely different cell strain by flipping a genetic "switch" in their DNA. The technique the scientists used is known as reprogramming.

REPLACEMENT ORGANS

The resulting cells grew spontaneously into the whole organ when injected into the mouse with other similar cells. The cells had the same structure, complexity and function as a healthy native adult thymus. The repro-

grammed cells were also capable of producing T cells — types of white blood cell important for fighting infection — in the lab.

The researchers hope that with further refinement their lab-made cells could form the basis of a readily available thymus transplant treatment for people with a weakened immune system.

The thymus, located near the heart, produces T cells, which guard against disease by scanning the body for malfunctioning cells and infections. When they detect a problem, they mount a coordinated immune response that tries to eliminate harmful cells, such as those which trigger cancer or pathogens like bacteria and viruses.

People without a fully functioning thymus can't make enough T cells and as a result are

very vulnerable to infections. This can be a particular problem for patients who need a bone marrow transplant (to treat leukaemia, for instance), as a functioning thymus is needed to rebuild the immune system once the transplant has been received.

Being able to create a complete transplantable thymus from cells in a lab would be a huge step forward in treating such conditions. And while several studies have shown it is possible to produce collections of distinct cell types in a dish, scientists haven't yet been able to grow a fully intact organ from cells created outside the body.

Rob Buckle, head of regenerative medicine at MRC, called the research "an exciting early step" but said much more work will be needed to replicate the process in a way suitable for humans.

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p-19

'Humane' brainpower for robots

Kounteya.Sinha@timesgroup.com

London: An Indian-origin-scientist has created a mechanical brain that will teach robots how to live and perform alongside humans.

The 'Robo Brain' — a large-scale computational system that learns from resources publicly available on the internet — is currently downloading and processing about 1 billion images, 1,20,000 YouTube videos, and 100 million how-to documents and appliance manuals.

The information is being translated and stored in a
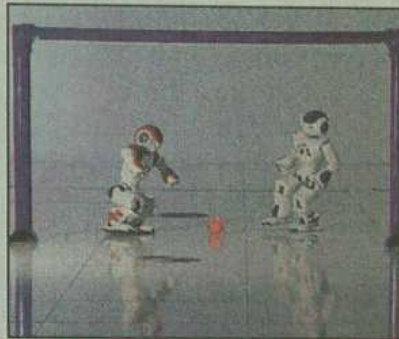
LIVING WITH HUMANS, LIKE HUMANS

robot-friendly format that robots will be able to draw on when they need it.

Ashutosh Saxena, assistant professor of computer science at Cornell University along with colleagues at Cor-

nell, Stanford and Brown varsities and the University of California, Berkeley say Robo Brain will process images to pick out the objects in them and by connecting images and videos with text, it will learn to recognize these objects and how they are used, along with human language and behaviour.

"The Robo Brain will look like a gigantic, branching graph with abilities for multi-dimensional queries," said Aditya Jami, a visiting researcher at Cornell, who designed the large-scale database for the brain.

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'Robo Brain' to teach robots how to mimic humans

Washington, Aug. 25: Researchers, including Indian-origin scientists, have designed a "Robo Brain" that gathers information from the Internet to teach robots how the world works and how the humans around them behave.
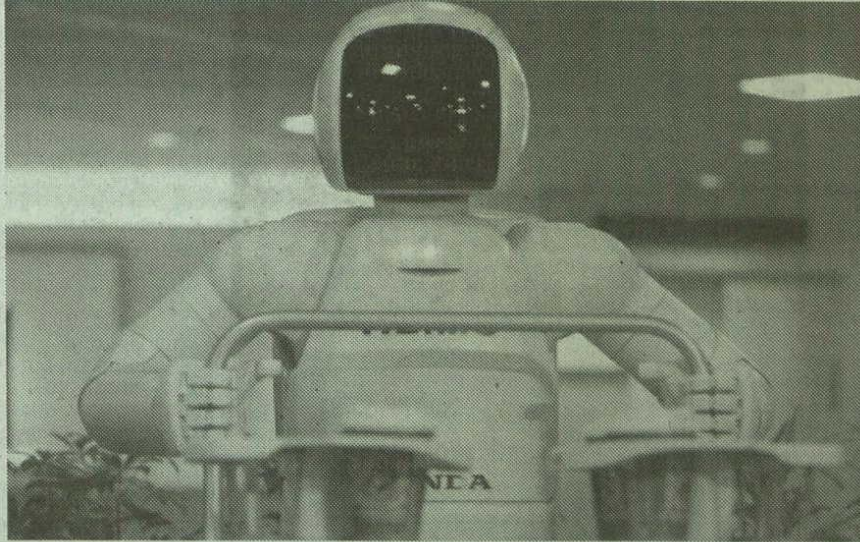
Robo Brain — a large-scale computational system that learns from publicly available Internet resources — is currently downloading and processing about 1 billion images, 1,20,000 YouTube videos, and 100 million how-to documents and appliance manuals.

The information is being translated and stored in a robot-friendly format that robots will be able to draw on when they need it.

To serve as helpers in our homes, offices and factories, robots will need to understand how the world works and how the humans around them behave.

Robotics researchers have been teaching them these things one at a time: How to find your keys, pour a drink, put away dishes, and when not to interrupt two people having a conversation. This will all come in one package with Robo Brain, researchers said.

"Our laptops and cell phones have access to all the information we want. If a robot encounters a situation it hasn't seen before it can query Robo Brain in the cloud," said Ashutosh Saxena, assistant professor of computer science at Cornell University.

Saxena and colleagues at Cornell, Stanford and Brown universities and the University of California, Berkeley, say Robo Brain will process images to pick out the objects in them, and by connecting images and video with text, it will learn to recognise objects and how they are used, along with human language and behaviour.

If a robot sees a coffee mug, it can learn from Robo Brain not only that it's a coffee mug, but also that liquids can be poured into or out of it, that it can be grasped by the handle, and that it must be carried upright when it is full, as opposed to when it is being carried from the dishwasher to the cupboard, researchers said. The system employs what computer scientists call "structured deep learning," where information is stored in many levels of abstraction.

A robot's computer brain stores what it has learned in a form mathematicians call a Markov model, which can be represented graphically as a set of points connected by lines (formally called nodes and edges). The nodes could represent objects, actions or parts of an image, and each one is assigned a probability — how much you can vary it

Honda's humanoid robot Asimo pushes a drinks cart as it serves coffee during a demonstration at a Honda laboratory in Tokyo, Japan. — *AP*

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● Researchers have been teaching them these things: How to find your keys, pour a drink, put away dishes, and when not to interrupt two people having a conversation

and still be correct. In searching for knowledge, a robot's brain makes its own chain and looks for one in the knowledge base that matches within those limits. "The Robo Brain will look like a gigantic, branching graph with abilities for multi-dimensional queries," said Aditya Jami, a visiting researcher art Cornell, who designed the large-scale database for the brain.
 — *PTI*

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Providing a creative edge to education

Vivek Agarwal's EnglishEdge, under LIQVID, is a product of his passion to teach

"I come from a small town, and the way you spoke English, kind of defined you. For me, teaching has always been a passion."

VIVEK AGARWAL,
CEO, LIQVID eLearning Services

BHARANI VAITHEESVARAN

Vivek Agarwal, who has been in the e-learning space for over a decade, says he has never been bitten by the proverbial entrepreneurial bug. He believes entrepreneurship cannot be force-fed. The decision to do something on his own was due to a "gradual awakening," to fuse the realities of doing a business with his passion for teaching.

"I come from a small town, and the way you spoke English, kind of, defined you. For me, teaching has always been a passion," he says.

Agarwal hails from a suburb of Nainital, Uttarakhand. He believes there are class, economic and cultural compulsions to speak good English in India and he has always felt the need to do something about it.

A Commerce graduate from Shriram College of Commerce and an alumnus of IIM-Calcutta, he worked in GE Capital, where he assessed balance sheets to decide whom to extend loans to and whom to reject. The two-year stint at GE was rewarding for he got to see the reality of the business world and, of course, saw his bank account swell. But the urge to be an educator was still there, and he wanted to be at the helm of affairs.

He thus began e-Gurukool, an online platform to deliver lessons and help educational institutions manage their curricula. The business went well, and he sold it to training services provider NIIT for ₹25-30 crore in 2003. His experience with e-Gurukool highlighted the holes in e-learning sector, and also provided capital for his next venture. His current venture, LIQVID eLearning Services, started in 2002, focuses exclusively on spoken and written English.

Internet penetration

He realised that his bet on Internet penetration was too high and the role of the teacher had to be modified to make online lessons a success. In EnglishEdge, the flagship product of LIQVID, the videos are shorter, teachers are acquainted with broadcast techniques involved in talking to students over the web, and self-training modules such as Talk-To-Yourself-In-The-Mirror are part of the curriculum. A new module in the making is an interview preparation exercise meant for smartphone users. A staffing expert asks the usual questions such as "What is your USP", "Why should we recruit you", and students can record their answers and send them across to EnglishEdge as a mock interview.

"For visual learning, we are creating a video of a candidate appearing for an interview and getting grilled. This can give a peek into what they may expect during the real thing," says Agarwal.

These new modules are meant for direct purchase by anybody with Internet access. From a business-to-business company selling its products to Educomp, the IITs, Jawaharlal Nehru University and several other training institutes working in rural areas to working on a new website for its interview preparation videos, EnglishEdge has become a delivery channel too.

Revenue model

EnglishEdge gets its revenue from two sources. One, from enterprise licensing where it builds content and websites for its business customers. The other is charging an amount based on the duration of training and number of learners benefited. This can range from ₹300 to ₹6,000. Investments in the business have touched ₹20 crore, which includes stakes by private equity firms Bedrock Capital and SBI Holdings, Japan, cumulating to $4 million. The target now is to raise $10 million to fuel its direct-to-customer venture.

Even now, Agarwal does not believe that 3G Internet is absolutely reliable. "It will take at least five years for good quality 3G to pervade the country. I think the wave of broadband Internet is still years away." But he is firm he is in this business for the long haul.