IITs, IIMs Devise Ways to Take Stress Head-On

ALL-OUT BATTLE: Technical and management institutes tweak study programmes, promote extra-curricular activities, invite parents to campus and even arrange counselling with psychologists to help students cope with the burden of high expectations.

Silent Killers on Campus

- Drugs
- Family/relationship issues
- Financial trouble
- Peer pressure
- Low self-confidence
- Emotional stress
- Adapting to the new environment, home sickness
- Decisions regarding career
- WHAT INSTITUTES DO TO HELP

COUNSELLING is provided at most institutes to help students focus, understand and deal with the issues affecting them.

- The counsellor offers support and understanding, and respects anonymity.
- IITs also offer guidance from seniors and faculty members assigned to them. They are also encouraged to take part in fun activities.

IIT Banglore and Lucknow have made changes in their curriculum to allow students to switch to slow-track programmes.

- At IIT R Madras, a behavioural science course helps dealing with stress. A home away from home culture is encouraged.

IIT Kharagpur allows students to drop courses if they can't cope, and making up for it in summers.

Sreenadh D Basu
Kolkata

Life took an unpleasant turn the moment Akhilesh D (name changed) joined IIT Kharagpur. A topper throughout school, the 18-year-old suddenly found himself struggling to cope in a class full of students equally bright or even sharper. Before long, he found himself spiralling into depression. A long stint of counselling later, Akhilesh is back in his studies and is an enthusiastic participant in campus activities.

Many others aren't as fortunate as Akhilesh. This year, seven students have taken their lives across the country's premier technological institutions, an unsettling rate high. While 2,117 student suicides were reported across India in 2006, the figure jumped to 7,379 in 2010, according to data released by the National Crime Records Bureau recently. Only the best and the brightest make it through the country's leading educational institutes. But this is just the beginning of the battle. Peer competition and the burden of expectation - a great job and salary are seen as natural curiosities - have been taking their toll on young students. The issues range from family pressure, adjustment and relationship problems, placements and fear of failure. The good news, however, is institutes are stepping in to provide support. From counselling cells to student and faculty mentorship programmes, extra-curricular activities, changes in curriculum, rescheduling of classes or even giving students the option of switching to slow-track programmes, every effort is being made to ease their burden.

Counselling sessions with qualified psychologists and psychiatrists with assured anonymity are par for the course at IITs, IISB and most other institutes of higher learning.

Economic Times ND 15-Nov-11
P.14
Less desi students in US, more Americans here

TIMES NEWS NETWORK

New Delhi: For the first time in many years, fewer Indian students are going to the US for higher study, while the number of Chinese students has jumped. But, also for the first time, the number of US students in India has jumped by over 44%.

According to the Open Doors annual survey by the US’s International Institute of Education (IIE), students from India decreased 1% to a total of 104,000.

---

**Reversing Trend?**

- Students from India decreased by 1% to a total of 104,000
- US students in India (3,884) jumped over 44%
- India has risen to 14th place as a destination for US students going overseas
- China increased its student population in the US by 23% to about 158,000

---

"Yet India as a destination for US students studying abroad, increased 44.4%,” said the survey.

Despite the decline, Indian students represent 14% of all international students in US higher education and the nation is by far the favourite destination for Indian students overseas.

The spike in Chinese students in the US, the survey said, is largely responsible for the country registering 5% growth in international students in its colleges and universities during the 2010-11 academic session.

China’s student population in the US rose by 23% to about 158,000, pushing it to the top of foreign sources of students in the US. There are also 13,910 US students in China, making for a 2% rise from last year.
India ranks 14th for US students

New Delhi: India has jumped to 14th place as a destination for US students going overseas. At 3,884, US students in India have climbed by 44%, moving India up from the 21st spot the year before, according to the Open Doors annual survey by the US’ International Institute of Education (IIE).

China remains a greater favourite, with 13,910 US students in China, or a rise of 2% from last year. The beeline for India and China is explained by the global interest in these two rising nations.

According to the study, the college campuses that reported increases in the international student intake also recorded more foreign government sponsorships. This applies for a large number of students from China, said others familiar with the flow of international students to the US. Indian students are overwhelmingly private citizens and depend on funding from scholarships and teaching assistantships. After the recession, many of these have dried up, and this may have had an effect on the student flow, they believe. The Open Doors survey said almost 70% of the funding for international students comes from outside sources.

Usually, the number of international students at colleges and universities in the US increased by 5% to 723,777 during the 2010-11 academic session. It said, this was a record high number of international students in the country, the fifth straight year of student increases - fast emerging as a major service sector earner for the US.

“Higher education is among the United States top service sector exports, as international students provide significant revenue not just to the host campuses but also to local economies of the host states for living expenses, including room and board, books and supplies, transportation, health insurance, and support for accompanying family members,” the survey said.

The top 10 most popular fields of study for international students in the US continue to be business and management (22%), engineering (19%), mathematics and computer science (9%), physical and life sciences (9%), social sciences (9%), fine & applied arts (5%), health professions (5%), intensive English language (5%), education (2%), humanities (2%) and agriculture (1%).
IIM-C to Weigh Fee Cut Next Year

Rethink comes close on the heels of IIM Kozhikode reducing tuition fees by ₹30,000

OUR BUREAU
KOLKATA

The Indian Institute of Management, Calcutta (IIM-C) will evaluate the possibility of reducing its tuition fees for the next academic year, following a similar move by IIM Kozhikode, IIM-C director Shekhar Chaudhuri has said.

"Even though our tuition fee is not one of the highest, it can still be a burden for a large section of students," Chaudhuri said. The tuition fees for IIM-C are at ₹13.5 lakh for the two-year flagship MBA programme, post graduate diploma in management. Tuition fees for the current academic year were not raised, he said.

IIM Kozhikode earlier this month said it will roll back tuition fees by ₹30,000 from the next academic year for its post-graduate programme and introduce scholarships for high achievers.

"At IIM-C, we have a scholarship scheme, under which we offer to 160-170 students annually, covering both first and second-year students. In some cases, we also offer full tuition-fee waiver. Such schemes may also be increased to provide a relief to students," Chaudhuri said. He was talking to the media on the sidelines of the inaugural session of IIM-C’s golden jubilee celebrations here on Monday.

Incidentally, IIM-C had said, a few days ago, that it will refund course fees of students if they join a public sector undertaking or a voluntary organisation. The initiative is primarily aimed to make such jobs attractive to students, who prefer corporate jobs for higher compensation and paying off their education loan.

IIM-C is also tapping newer sources of revenue. For instance, income from online education now accounts for 20% of its total income, says IIM-C’s chairman of the board of governors Ajit Balakrishnan. “This is much higher than global institutions like Harvard and Stanford. We have already trained over 4,000 students online,” he said.

Former president of India APJ Abdul Kalam said in the inaugural session that students in India need not worry about the slowdown in Europe and the US. “The growing purchasing power of India’s 400 million middle-class will provide enough career opportunities. Economic development is powered by creative leaders and who can take risks. However, students should work with integrity,” he said.
FIXING HISTORIES

The number of Ramayanas and the range of their influence in South and Southeast Asia over the past twenty-five hundred years or more are astonishing. Just a list of languages in which the Rama story is found makes one gasp: Amharic, Bahasa, Bengali, Cambodian, Chinese, Gujarati, Javaans, Kannada, Kharosthi, Khmer, Malayalam, Marathi, Oriya, Panjabi, Sanskrit, Tamil, Thai, Telugu, Vietnamese. Tens, if not hundreds of versions in all the classical and folk traditions, the number of Ramayanas grows even larger. To these must be added sculptures and bas-reliefs, masks, play puppets and play shadows, and in all the many South and Southeast Asian cultures... Three Hundred Ramayana Examples and Three Thoughts on Translation by A.K. Ramanujan

The CONTROVERSIAL TEXT

"Epic as Ramayana certainly belong to can be contextualised in any given time and space."

CAN EPICS BE MONOHYBRIDIC? "Epic as Ramayana certainly belong to can be contextualised in any given time and space."

"The classroom becomes a mere theatre of larger politics. But students come to a classroom to be exposed to plurality of ideas and to develop critical thinking. Wouldn't a denial of diversity of perspectives be criminal?"
DU essay row mirrors the rot in higher education

by Jyotirmaya Sharma

THE REMOVAL of A.K. Ramanujan’s essay on the Ramayana by the Delhi University’s Academic Council has, once again, been a source of controversy in the university. The essay, which was published in the journal of the university, has been accused of being anti-Buddhist and anti-Hindu.

The episode has also raised questions about the role of the Vice-Chancellor in the academic affairs of the university. The Vice-Chancellor, who is also the ex-officio member of the Academic Council, has been accused of exerting undue influence in the decision to remove the essay.

The academic community has expressed its concern over the decision, arguing that it is a violation of academic freedom. The removal of the essay has also raised questions about the university’s commitment to pluralism and diversity.

The episode has also highlighted the need for a robust mechanism to ensure academic freedom and the right to freedom of expression. The university needs to develop a clear policy on academic freedom and ensure that it is respected by all members of the university community.

Mail Today ND, 15/11/2011 P-10
Bacteria CAN TALK!

By ‘chemical twitting’, bacteria control the behaviour of the colony

By Purnendu Ghosh

BACTERIA, like humans and insects, possess social intelligence. Like us, bacteria have the capacity to perceive and understand the environment. When in a group, bacteria can sense the environment, process information, solve problems and make decisions so as to thrive in harsh environments. In good times, when there is enough food, they know it is good for them to keep the surplus for the future. They know how to keep them safe from other species, and how to prevent other species invading their space. There are also instances of bacteria committing suicide for the sake of others; under nutritional stress, the dying bacteria lyse to release nutrients for the benefit of their compatriots.

Bacteria talk to each other in chemical language. They have a "sense of quorum" and the "quorum sensing" is dependent on population density. It means that the "chemical twitting" does not happen until the bacterial population density reaches a certain threshold value. When bacterial numbers reach a critical mass, individual cells secrete signalling molecules that control the behaviour of the colony. Many species of bacteria use quorum sensing to coordinate gene expression. Bacteria, for example, use quorum sensing to decide whether or where to form biofilm.

Esther Ben-Jacob of Tel Aviv University and his team studied social capabilities of bacteria. The team sequenced the genome of 500 bacteria, and on the basis of comparative analysis they developed a 'Social IQ score' for bacteria.

The score is based on the number of genes a particular bacterial strain has with abilities to communicate and process environmental information, to make decisions and to synthesise offensive and defensive agents as needed during chemical warfare with other microorganisms. Among the sequenced bacteria, the team found Paenibacillus vorte to have the highest social IQ score (over 3 standard deviations higher than average). Humans with IQ of three standard deviations above average include scientists like Albert Einstein and Stephen Hawking. Ben-Jacob believes that smart bacteria (high social IQ score) can outsmart pathogenic bacteria. The social intelligence of Paenibacillus vorte bacteria is at the "genius range", whereas the social IQ of pathogenic bacteria is generally "average".

Smart bacteria can develop strategies against antibiotics, thus foiling the antibacterial strategies developed by the researchers. Since we don't give due respect to bacterial social intelligence, we fail to see their potential impact. We fail to see the bad side of indiscriminate use of antibiotics. Once we recognise this skill in bacteria, we can develop new possibilities of healing them in the game of one-upmanship.

Since all bacteria can communicate, one way could be to make the bacteria deaf or mute. Another way could be to make the bacteria talk better, that is, in keeping us healthy. Yet another way could be the use of anti-quorum type of compound, says Bonnie Bassler, to make the bacteria "think" they were alone when they are actually in a group. If alone, they don't initiate virulence cascades.

Thus understanding the smart bacteria can help us to invent new anti-bacterial drugs, and at the same time find new ways to better exploit the capabilities of friendly bacteria for our benefit. Paenibacillus vortex can be the role model for constructing smart bacteria. Social IQ score can show us the way to develop more efficient bacteria for use in medical, agricultural and industrial biotechnology. A smarter, more flexible microorganism, such as Paenibacillus, can be used for "programmable biotechnology", an extension of "synthetic biology", to produce designer biomolecules as and when needed.

The writer is a biotechnologist and ED, Birla Institute of Scientific Research, Jaipur
Wonder cancer drug holds promise

PTI ■ LONDON

Scientists claim to have achieved a major breakthrough by creating a "wonder drug" which kills off cancer — in fact, it could wipe out some of the most deadly forms of the disease.

An international team, led by University of California, says that the KGS drug works by making cancer cells "commit suicide", it stops tumorous cells multiplying and they then shut themselves down, the Nature Medicine journal reported.

The radical drug will bring fresh hope to patients with aggressive and deadly tumours and could be available in as little as five years, say the scientists, who hope to deliver it in pill form, which has very few side-effects.

Lead scientist Prof David Cheresh said the drug "blocks the function of proliferation" and the malignant cells commit suicide when they can't multiply. Proved effective in tests against pancreatic, breast and kidney cancers, it could well have a positive effect on a broad range of other tumours.

KGS works in a totally different way to traditional therapies by altering the structure of a cancer growth protein, an enzyme known as RAF.

The protein has been long-studied, but its role in cell division — critical to cell proliferation and tumour growth — is a surprise. Existing treatments block RAF's activity. However, KGS changes the entire shape of the protein, which neutralises it without leading to unwanted side-effects.

To date, KGS has been tested in animals and tissue samples taken from patients.

The team has since developed variants of KGS that are 100-fold more powerful than the original drug. They hope one of these more powerful compounds will enter clinical trials on humans at Moors Cancer Centre in San Diego within 18 months.

"Before this drug was designed, we had no idea RAF could promote tumour cell cycle progression. This may be only one example of how, by designing drugs that avoid the active site of an enzyme, we can identify new and unexpected ways to disrupt the growth of tumours.

"In essence, we are attacking an important enzyme in a whole new way and thereby discovering new things this enzyme was intended for," the Daily Express quoted Prof Cheresh.

At present, medicines that target enzymes like RAF often damage healthy cells, according to Prof Cheresh.

Continued on Page 4

Wonder...

From page 1

"They hit many different targets, meaning they can produce undesired side-effects and induce dose-limiting toxicity," he said.

Rather than homing in on a particular part of the protein, the new class of RAF inhibitor alters the enzyme's whole structure. It singles out RAF in proliferating cells, while ignoring normal or resting cells. KGS also acts by cutting off the blood supply to tumours.

Dr Julie Sharp of Cancer Research UK, welcomed the new findings, saying: "The next step will be to test out these ideas with patients."
Balm for broken hearts!

Heart tissue can be regenerated using stem cells

By Savita Verma in New Delhi

Scientists have for the first time shown that stem cells obtained from one's heart can be used to regenerate heart tissue and improve the heart function in patients suffering from heart failure.

Heart failure results from loss in heart function because of the death of heart muscle tissue, mainly due to blockages in vessels supplying blood to the heart. Thus the heart's pumping function is affected, which is known as decreased left ventricular ejection fraction (LVEF).

Currently, there is no treatment which can address the problem of the loss of heart tissue. Scientists say it is now possible to regenerate heart tissues by using cardiac stem cells drawn from the patient. The results of human trials of this technique were announced by scientists in the medical journal The Lancet on Monday. The trial was conducted by University of Louisville and Harvard Medical School.

"If regeneration of heart tissue becomes a treatment option for patients with ischemic cardiomyopathy, that is those whose heart cannot pump enough blood due to the blocking of blood vessels, it will be the most important medical discovery of our lifetime," John Laughman, one of the researchers from University of Louisville, said.

The trial involved 23 patients with heart failure caused by heart attack. All these patients had undergone surgery. Of these, 16 had received heart stem cells obtained from their own heart while the remaining seven received standard care without stem cells. One million stem cells were given via a balloon catheter approximately after four months of the bypass surgery.

In 14 patients who received stem cells, heart function improved — LVEF increased from 30.3 per cent before the stem cell treatment to 38.5 per cent at four months after treatment. In patients who had not received stem cells, the LVEF did not change.

Scientists said the positive effects of stem cells treatment became more pronounced at one year of treatment in eight patients with LVEF increasing by 12.3 per cent from 39.2 per cent before treatment to 42.5 per cent. Treatment was shown to reduce the size of the heart's dead tissue in seven patients on whom an MRI was done, by 24 per cent at four months and by 36 per cent at one year.

An adult heart contains stem cells which are able to multiply and differentiate into different types of heart cells. Treatment with stem cells led to increased functional capacity. There were no apparent adverse effects for up to one year.

Commenting on the work, Gerd Heusch from University of Medicine, Germany, said the results raised new optimism because the study reported benefits which are of an unexpected magnitude.