BW EDUCATION

FUTURE OF EDUCATION SURVEY 2017

IIMs TO APPOINT OWN DIRECTORS; JNU RESEARCH SEATS TO BE INCREASED

"$3bn to be infused into ed research & infra in near future"

PRAKASH JAVADEKAR like never before on:
+ SCHOOL EDUCATION
+ ACCREDITATION OF INSTITUTIONS
+ UNIVERSITY RANKING

INSIDE:
SALMAN KHAN, Founder, Khan Academy,
JOHN HALLIGAN, Minister of State for Training & Skills, Ireland,
SHASHI THAROOR, Former HRD Minister,
PROF. ASHISH NANDA, Director, IIMA

Exploring New Education Policy With T.S.R. SUBRAMANIAN, Committee Chairman, National Education Policy

RAJENDRA S. PAWAR, Founder NIIT Univ. & Chairman NIIT group talks on
1. Financial Reform
2. Curricular Reform
3. Policy Reform in education
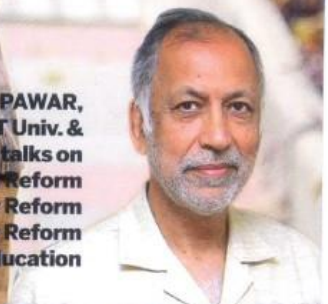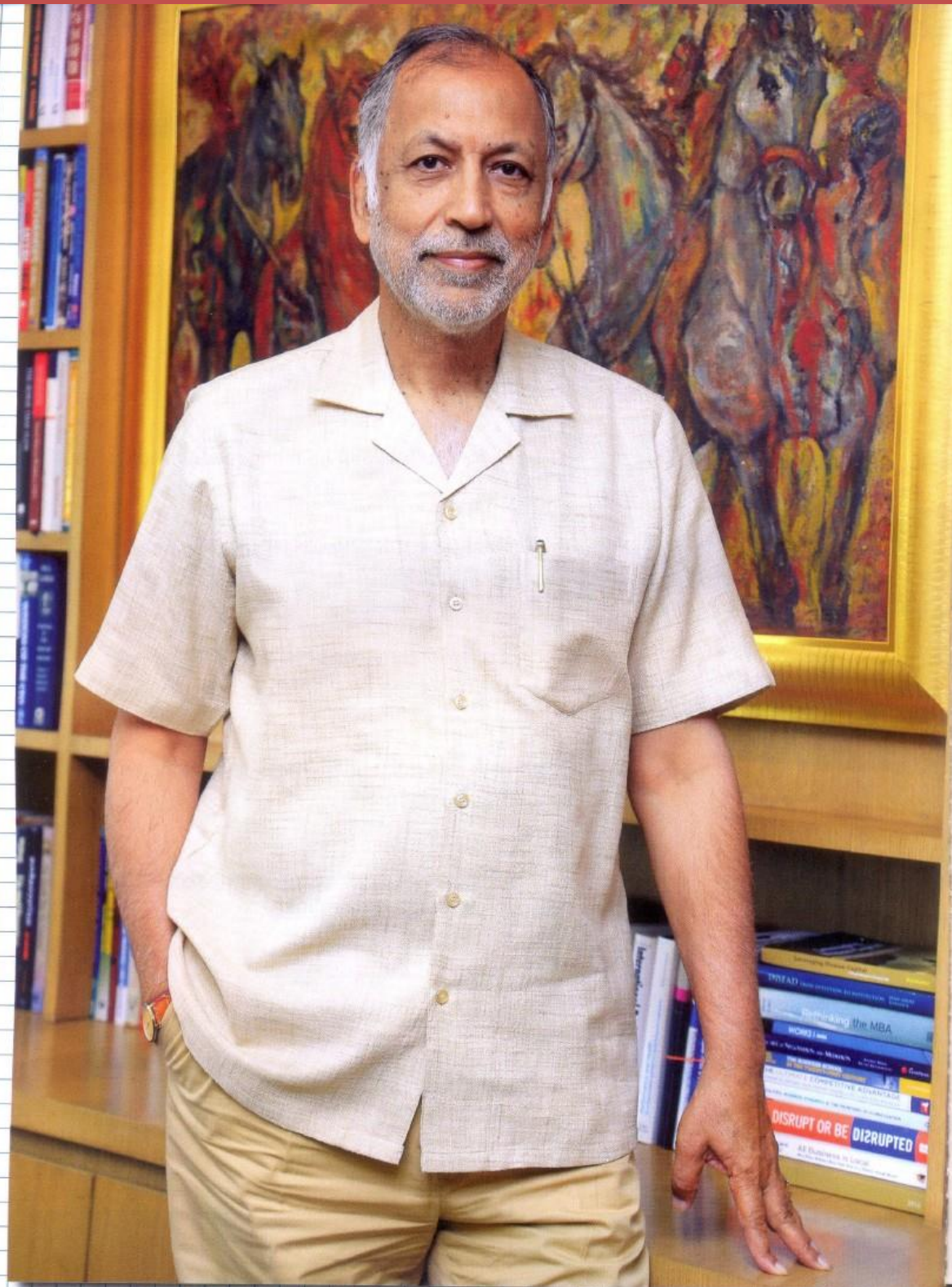
"Nothing is impossible, rather, anything is possible"

Every problem that comes, you look at it as an opportunity and not as a math or a civics or a geography or biology problem
By Sreerupa Sil

A PROFESSOR is hard to locate in this university. Groups of young people experimenting with gadgets in the nooks and corners is a regular view in this widespread green campus. Early mornings rise with students trekking across the hill near the campus to enjoy the sun rise. Well, that's possible also from Astachal, a gallery on the terrace for literary meets, debates, talks and Socratic dialogues, which pretty much occur every evening during sunsets. Witnessing a view like this, often make one question- what is futuristic education, what are we thriving for, what are we trying to create as educators? The man behind this whole innovation has been always known for his new and foreseeing ideas way back from 1981, a decade before liberalization of Indian economy, when he started NIIT Technologies. NIIT University was imagined, envisioned and eventually established by Rajendra Singh Pawar, Chairman and co-founder of NIIT group and Founder in 2009. Reformative, as his ideas always are, Pawar speaks to Sreerupa Sil of BW Education on the immediate needs in the education sector, the three reforms and note for higher education leaders.

Q: What is the purpose of education?

Let me start with the story of Aman Nath who visited our university recently to take a faculty development session. A historian by education, he is the one behind re-imagining Neemrana Fort. His latest work involved building an underground hotel on the Sohna road. The building is dug around the well to keep the building's temperature under control, topped by a lawn, literally. The lesson I carried from here was 'nothing is impossible'. That is education when a young child can believe 'anything is possible'. It is also drawing, sketching, calculations and constraints with the tools you have. Education needs to unbottle the genie in a child and unshackle minds. When the world is completely uncertain, preparing a person with fine skills is harmful since you are making them outdated the day they come. Whereas if you unshackle them, make them adventurous, build a strong sense of daring and let them lose, they will cope. Certification, validation, rankings are so industrial that it boxes away the human spirit of learning. Our core principles of being research driven, innovative and entrepreneurial takes student to a new zone of learning to make them more relevant in adapting to change.

Q: The concept of relevance is quite interesting since 'relevance' is rapidly changing.

If one has a sense of daring, only then s/he will be able to cope with the unknown, unlike saying 'this is out of course'! In our life, we are seamlessly dealing with the rich, poor, birds, surrounding etc, you are getting equipped to deal with environment in a comprehensive way. Every problem that comes, you are looking at it as an opportunity and not as a math or a civics or a geography or biology problem. If we train young minds to deal with such problems and doing it in a way that serves the purpose of society. Industrial era on the other hand dealt with completely different 'relevance'. The technology for cement industry lasted 25 to 30 years. One could manage a lifetime un-

derstanding that technology in an industrial era, but it is no more relevant now. Teaching to learn therefore is the most important phenomenon.

Q: That's the most difficult skill to teach, isn't it?
Kids are learning on their own. The biggest challenge is that students are absorbing much more information from outside than from inside the system. A child is a liberated learner- this is a very big challenge for education at present. Now the student compares his teacher to a video on YouTube or Ted Talks and finds them smarter than their professors.

Q: What will then be the role of the institutions?
The potential role of the institution will change. A child can study the laws of physics sitting at home but may not be able

to relate them to their daily life. A child may not get inspired since the umpteen videos and content may not intellectually challenge a young mind. Additionally peer learning does not happen online as much as it happens in the institution. That social setting makes one more responsible because of the immediate reaction as against that of 'check again' comment of a computer. Providing a setting for real interaction, dialogues, debates for collaboration, sensitivity and thoughtfulness should be provided by great institution.

Q: Faculties are not really practitioners in our system. How do you take care of that?
Our university has a norm of students working with the industry for 6 months in a year. While the students are out working for companies across the globe, they are mentored

"A CHILD IS A LIB-ERATED LEARNER- THIS IS THE BIG- GEST CHALLENGE FOR EDUCATION AT PRESENT. "

energy in India's corporate sector. Since then a number of Indian companies have earned a name in the global marketplace. We need similar type of policy reforms in the education sector. Players in this sector must be given the freedom to enter, operate and exit.

According to All India Survey on Higher Education (AISHE), India has 38,000 colleges making up 767 universities catering to 33 million students and 1.4 million teachers. Despite of that, India needs more universities. India needs 'curricular reforms'. In today's world, where technological knowhow is evolving with each day, educational institutions need to be granted the freedom to engage with the industry and change the curricula as and when required. Education Industry must teach what the industry needs.

And finally, the education sector also needs 'financial reforms', especially in higher education. The government should provide scholarships and loans to those who need it the most, and leave academic fee to be determined by market forces. That's what will make our educational institutions relevant and self- sustaining. The need of the hour, therefore, is to rapidly implement this three-pronged reform process- policy reforms, curricular reforms and financial reforms. **BW**

and taken care by three people- her mentor in the company, her faculty in the institution and her faculty-guide in the city. The rule in our campus is of fourteen students guided by a faculty. So when the students travel, they keep in regular touch with their on-campus faculty to discuss on the solutions for problems being thrown at them in the companies. This is a huge learning experience for the faculties. Fourteen students placed in cities across the globe communicating with one professor on several real-life problems-the learning is humongous.

Q: To make this even more effective, what kind of reforms are required?

In 1991, India opened up several sectors to foreign investment. The liberalization process unleashed enormous

INTEREST IN PURSUING WORKING WITH STARTUPS / ENTREPRENEURIAL INCLINATIONS

Point of Interest

Southern India display a much larger inclination to pursue alternate careers.

There is no significant difference between inclination shown by males and females.

Over **75%** of students from International curriculum show an active interest in alternate careers.

Point of Interest

Why students are not considering working with startups / becoming entrepreneurs

Mostly students from a business background show an inclination to pursue their own ideas.

There is extreme importance paid to examinations, with limited freedom to pursue curricular activities.

Hence there is an aversion to taking risk.

Job security is also a major concern - parents and teachers are not always reassuring.

RAJENDRA SINGH PAWAR,

Chairman and Co-Founder of NIIT Group
& Founder, NIIT University

Before 1990, during the license raj, research was limited to PhD students which went up to the stage of publishing a book. In order to convert research to a commercial activity, one needed to have that part of the system functional. Enterprise seeking new ideas was not a part of the license raj, which was rather appropriate at that point in time. Meanwhile the world started moving towards an open economy but we remained closed till 1990. After we decided to open our economy in 1990, we didn't need a permission to manufacture. People could make anything. The situation thereafter arose where capacity was more than demand leading to more choices. Now days, when to go for shopping, we are finicky about what we buy because we have a lot of choices which we didn't have in the earlier days. So, this opportunity of making choices by the consumer forces competition which in turn forces innovation. With enterprises valuing the superior or quality products leading to comparison, more and more application of mind was required and the logical flow therefore was research.

We inspire our students to become job creators than job seekers. However, this also depends on the inclination of the student. If the student is completely tilted to the technical side and not comfortable with taking risks, we completely support them. On the other hand, we make sure to provide all opportunities to evoke and hone all the necessary skills for students with slightest inclination towards entrepreneurship. Students are offered crash courses in finance, banking and other entrepreneurial skills along with their core technical course.

IN ACTION

GREY CELLS

SREYASH TRIPATHI
B.TECH, 4TH YEAR
NIIT UNIVERSITY

It is said that 'A Stitch in time saves nine'. All over the world, people are applying this principle to personal health, by undergoing regular health check-ups, even when their health seems to be in a good condition. The reason is to catch that disease early, before its' symptoms start manifesting. If a disease is detected early, it will significantly reduce the cost of treatment; leave aside the loss of precious man hours, inconvenience and possibly permanent impairment.

The same principle is valid for any machinery. Today preventive maintenance is performed as per manufacturers schedule or in event of a malfunction, when it becomes 'symptomatic'.

This can be further explained through example of say a disease like Diabetes. Let's say upper permissible limit of sugar level is 140 and a particular individual has his/her sugar level maintained at say 115 for last decade. However, in the previous year the sugar level recorded was 117 and this year its 121, both well within the prescribed limit, where person is declared perfectly healthy. Yet if plotted graphically the rise "trend" in sugar level is observed which can be extrapolated to predict a date by when sugar levels may cross the prescribed limits. Hence preventive measures like diet control, regular exercise etc. could be adopted to avoid or at least considerably postpone the disease.

We use a similar methodology for protecting valuable machinery and industrial plants through constant online monitoring of crucial parameters, much similar to taking an 'ECG'. It involves measurement of various parameters that determine the wellbeing of the machines such as temperature, vibration, sound (noise), Pressure, flow, input values of voltage and current etc. Thereafter software can identify two important deviations from specified parameters:

1. Parameters crossing the prescribed threshold limits (sets alerts to go for root cause analysis of the deviations)
2. Even if parameters are within the prescribed threshold limits is there any trend that can be spotted which has potential of future deviation

Any event of deviation of parameters beyond the benchmark values would suggest of a potential malfunction in one of its subsystems. This will check a major breakdown in the plant in its nascent stage. In this condition, immediate steps can be taken to correct the error at its early stage which would minimize the cost of repair, downtime, inefficiency, and loss of production.

Early Diagnostic and Warning Systems (EDaWS) goes to the extent of gathering various information like vibration, temperature, pressure, flow, energy consumption, power factor, process performances, historical records and the understanding of maintenance cultures in order to formulate a 'Condition Portrait' in solving predicting and preventing complex problems.

IN ACTION

GREY CELLS

PRAJWAL & CHAGANTI
## B.TECH, 2ND YEAR
NIIT UNIVERSITY

Our Project Proposal is **"LOW COST MODULAR BASED WATER QUALITY MONITORING FOR AQUACULTURE AND FISHERIES"** for DST and Texas Instruments India Innovation Challenge Design contest 2016. Basically their main Theme is to think of an innovative idea which has the potential to create the next big product Enterprise.

Now a days it is very important that there are certain parameters to be maintained at an optimum level for the proper growth of the aquatic organism being grown in the ponds by farmers. This project aims at delivering a low cost semi-automatic aquaculture management system for those medium and low scale farmers who cannot afford the presently available automated water quality management systems in the market.

The target customer are mainly the medium and low scale farmers in addition to the aquaculture fisheries looking forward to low cost water quality management system Most of the automated systems currently available either come in- 1. As a device which could control the motor/ aerator/ other device control which increases the cost by a lot, thus can't be implemented by low-scale and medium scale farmers. 2. The other monitoring system comes in as one single package and thus on a long run, any fault would result in higher costs. Thus we have proposed the idea of using modules for individuals and integrating it to one base micro-controller. Which reduces the long run costs considerably.

COMPONENTS USED IN OUR PROJECT-
MSP430G24S2 For pH and salinity sensors.
ADS1113 Temperature sensor.
LM741C Used in the pH sensor.
CD4052B Multiplexer to switch between the modules from the base controller.
CC3200 Base Controller for transmitting the data to the user directly and also for displaying it on a LCD.
16x2 LCD To display he data besides also being sent to the user directly through Wi-Fi.
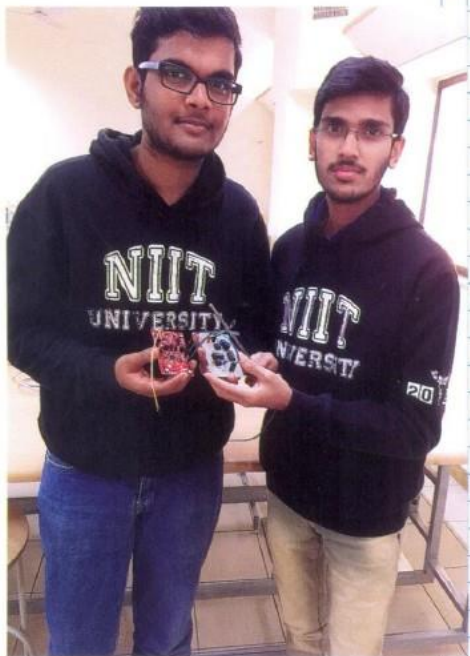
INNOVATIVENESS OF THE PROPOSED SOLUTION-
The modular design is itself a standalone in the market. The idea provides for a cheap to maintain device with low power consumption which would be essentially only the power required to power the IC's. Functionality of the system can be further increased by inducting additional modules, whose design can be included in the upgrades. Thus the user has an option to include only those modules as desired thus prompting for a cheaper product, as the user need not pay for the unwanted parts.

FEASIBILITY-
In the recent decade or so, the sector of aquaculture though has increased both horizontally and vertically, becoming almost 12 folds to what it was in 1980. This also has brought some significant issues with it like a vast un-utilized and under-utilized of land and water resources. In order to tackle the fore mentioned problem, we are determined to develop a low cost water quality monitoring system.