THE FOUNDATION POST

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Research in India
What are the hurdles hampering the development of research in India

Research at Shiv Nadar University and SSN
Nurturing the spirit of research

Snapshots
Updates from Shiv Nadar Foundation

RESEARCH IN HIGHER EDUCATION IN INDIA

EDITORIAL

India has 8410 institutions of higher learning, the highest in the world. However, the only Indian institution that makes it to the top 200 of any global academic ranking is IISc Bengaluru, ranked at 147th in the QS World University rankings, 2016[1] . The conspicuous near-absence of Indian higher education institutions in any ranking of global universities reminds us each year that our universities do not belong to the world's top pecking order.

> *One of the key reasons for the low global ranking of Indian institutions is low research score. The problem is two-pronged. While lack of opportunities to engage in meaningful research is one part of the story, the other is clearly lack of motivation on part of the students. The Indian education system often does not encourage students to engage in independent thinking and innovation during their early formative school years or even during their undergraduate studies.*

It is pertinent to note here that historically India has been home to the greatest innovators, researchers and thinkers at universities such as Takshashila, Nalanda, Vikramashila and Pushpagiri. These institutions dominated as centers of learning for almost two thousand years and attracted scholars from across the world.

Maybe it is time that we can take a leaf out of the playbook of ancient India and develop new methods to teach our students to think, without telling them what to think. The Government is taking serious steps to imbibe innovation back into learning and integrate research with higher education. The Shiv Nadar Foundation is also working in this direction and taking steps to integrate original thinking, creative endeavors, and research into mainstream education through its institutions.

This newsletter explores the research landscape in higher education in India, looking both at the challenges and the opportunities.

RESEARCH
IN INDIA

India has a huge talent pool which comes at a significantly low cost but it is not leveraged well in the field of research. There are two main reasons for that. Firstly, when deciding the subject or discipline to be pursued for higher education, Indian students are often guided by the material worth of the subject rather than their academic interest. It therefore translates into most of the potentially gifted students opting to pursue professional courses like medicine or engineering rather than pure sciences. Secondly, students who indeed choose to pursue academic research are discouraged by the lack of research infrastructure and opportunities in most higher education institutes of the country and also the inadequate reward of delivering excellence in research and teaching. While motivating more students to join the pursuit of academic research will require an entire overhaul of the pedagogies and prevalent social mindscape, the first step would be to understand and address the second face of the problem, i.e. lack of scope and reward for research.

Among the top reasons that have historically proven to be the biggest roadblock to developing research in our country are:

Massive Expense

The setting up of labs and the procurement of necessary equipment requires large amount of funds. Given the nature of this mammoth investment, most Indian researchers still rely on government funding. At the same time government funding for academic research has been and will remain limited and the small academic universe will be competing for the same grants leading to severe competition.

Inadequate R&D investment
by private companies

In India, R&D investment by the private sector is very low, amounting to only around 25% of the total investment in research. The main reason for this is that most Indian companies fall in the small or medium scale bracket, with limited profits to invest towards research. Due to the high subsidies and tax benefits accorded to such companies, the incentive to redesign and deliver better products in order to expand the business is low. Even the larger private corporate houses like IBM, GE, Motorola, etc. which invest significantly in R&D in other countries, are not encouraged to set up in-house R&D centers to attract scientists and researchers.

Limited opportunities
for translating research output into practical implementation

India does not have a legislation that would enable the transfer of know-how from the research labs at universities to the industry for commercialization. Not only advanced economies but also developing countries such as South Africa, Indonesia and Brazil have legislation that enables licensing and transfer of economically significant innovations to commercial markets. It is important to put these laws in place to encourage private investments in research.

Copyright and patenting laws
in India are not stringent

The U.S. Chamber of Commerce released its 5th annual International IP Index in 2017. It rated 45 global economies on patents, trademarks, copyright, trade secrets, enforcement, and international treaties in order to provide a guidebook for policymakers seeking to bolster economic growth and innovation. The Index ranked India at 43. India's short supply of patent examiners were cited as the main reason for this. Speedy examination and registration procedures will be the first step towards correcting this imbalance.

http://www.topuniversities.com/university-rankings/world- university-rankings/2016

While there is no unidimensional solution to the problems plaguing India's scope of research, there are several measures that have been adopted in the recent years that hold out a beacon of hope. The government has taken several initiatives to encourage research – not just at the higher education level but also school level. These steps include:

4

1

Setting up Incubation Centers with Seed Money to do innovative research under the 'Atal Innovation Mission' enabled by NITI Ayog - It is also setting up the 'Atal Tinkering Laboratories' in schools to foster out-of-the box thinking and scientific curiosity among students.

2

Setting up of research parks in central educational institutions - 13 Startup centers, 16 Technology Business Incubators (TBIs) and 6 Research Parks are already being established under the Startup India scheme.

3

Streamlining processes for technology transfer - The National Research Development Corporation (NRDC) is also collaborating with Indian Institute of Chemical Biology (IICB) which will give an impetus to the "Startup India" and "Make in India" missions of the Government of India by promoting entrepreneurships, incubation, Intellectual Property Rights (IPRs) and technology transfer.

4

Encouraging private research investment - Uber Technologies making its Bengaluru technology center a hub of product innov tion for India, introducing new products on payments, vehicle intelligence and mapping, the Tata Group collaborating with world's leading academic institutions including IIT, Madras to fund research and development opportunities, are just some examples.

In conclusion, we should note that inspite of hurdles present, India produces researchers, who are respected globally and if India finds a way to boost private investment in research and bridge the industry- academia gap, the research scores of our country will improve significantly.
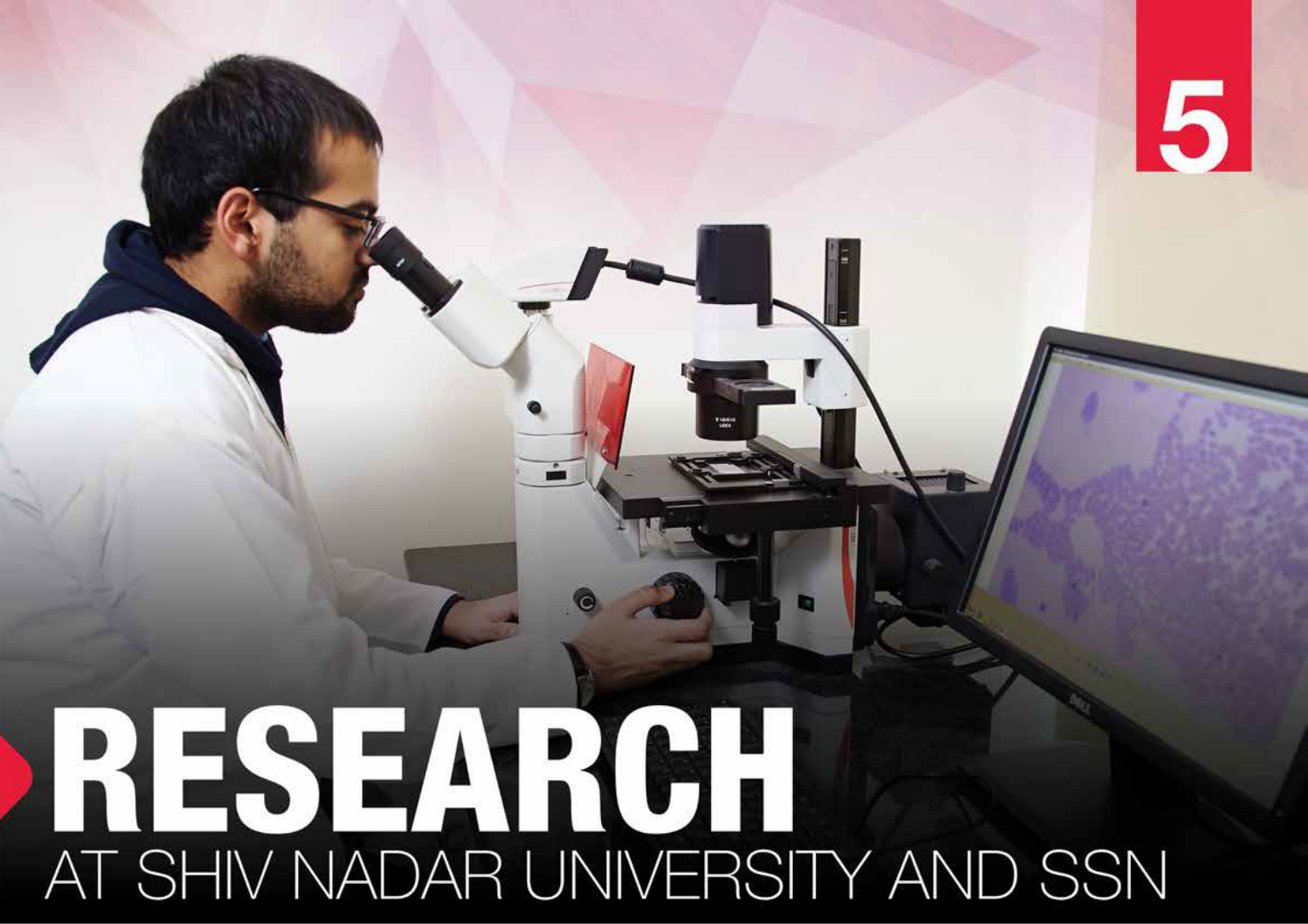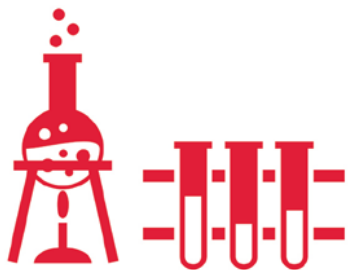
RESEARCH
AT SHIV NADAR UNIVERSITY AND SSN

Universities are not only institutions responsible for the dissemination of knowledge but the creation of new knowledge. Both Shiv Nadar University and SSN, the higher education institutions under the aegis of Shiv Nadar Foundation are working towards integrating research seamlessly into the teaching-learning process. Some of the steps taken by the institutions to promote research thinking include the following:

CREATING ADEQUATE RESEARCH INFRASTRUCTURE

Both Shiv Nadar University and SSN have invested heavily in creating adequate research infrastructure. While SSN has already set up the SSN Innovation Centre and the SSN Incubation Centre to promote innovation and encourage commercialization of research, the Shiv Nadar University was selected by NITI Ayog this year to set up an Atal Incubation center in its campus. The Shiv Nadar University has also created a new research block that is equipped with cutting edge technology to facilitate impactful and relevant research.

PROMOTING AND EVALUATING SCHOLARLY RESEARCH AT EVERY LEVEL

Research is not only encouraged at the PhD level or for the faculty members but even for undergraduate and postgraduate students. SSN actively promotes a culture of research for students and conducts several workshops and competitions throughout the year to identify and nurture unique and potentially viable ideas. Very recently two students from SSN filed a patent for their invention GoSafe – a Women's Safety Device. There are several other such ideas being incubated at SSN currently. At Shiv Nadar University, the Opportunities for Undergraduate Research (OUR) program was instituted to integrate research into the curriculum and allows students to work on research projects of their interest irrespective of their current program of study.

PROMOTING COLLABORATIVE WORK

Creation of new knowledge seldom happens in silos. Collaboration with the industry, other academic institutions and the Government is important to facilitate cross-pollination of ideas and boost research. SSN is collaborating with the Ministry of Micro Small and Medium Enterprises (MSME) for funding innovative ideas and also working on several projects funded by Government organizations like DRDO, CSIR, AICTE, ISRO etc. Shiv Nadar University is also partnering with industry leaders like DELL to collaborate and drive excellence in research and innovation. In order to promote cross-institutional research the University recently concluded the Project E-QUAL supported by the British Council. This was jointly done by five universities including Ambedkar University, Jadavpur University, King's College London, Shiv Nadar University, University of Bologna, and University of Hyderabad to enhance the quality, access, and governance of undergraduate education in India.

Both SSN and SNU aim to become internationally recognized for the quality of its research and creative endeavors and their applicability to improving quality of life, generating new insights and expanding the boundaries of human knowledge and creativity.

SNAPSHOTS

LAUNCH OF SHIKSHA+
IN KASMANDA

SHIKSHA Initiative strategically intensified into adult literacy approach entitled as SHIKSHA+ that follows an integrated methodology to teach the fundamentals of reading, writing and arithmetic skills to illiterate adult's who have not attended a formal school. With this objective, SHIKSHA+ was initiated in Kasmanda block of Sitapur district in May 2017. Prior to implementation, social mapping was done to encourage and help community to get directly involved in their development and to identify center locations. In total, 749 household surveys were done in 10 villages and 1070 adult learners were identified. Post identification of learners, pre-test was conducted of 103 learners to select and enroll candidates as per the eligibility criteria. Criteria like age, pre-test scores were considered while enrolling learners in the batch. Thus, 100 learners were enrolled in Batch 1 in 10 SHIKSHA+ centers who will undergo training for 90 days. Further, to ensure effective implementation of SHIKSHA+, 8 instructors are recruited and trained with an intent to equip them with necessary skills and knowledge to impart learning.

HANGAR
FOR THE PASSERBY

The KNMA opened for the public a new exhibition 'Hangar for the Passerby' on 18th April, 2017 at Noida whose main protagonist is the transient figure of the Passerby. The exhibition is an assemblage of collectivities, collectives, collaborative practices, and moments of transference across generations and groups of artists practicing in India. It highlights contexts, emotional investments, challenges and schema of artistic collaborations and sociality, through juxtaposition of different models and attempts of coming together as proposed by different artists.

At the heart of the exhibition is a souvenir shop that makes the museum a meeting ground and criss-crossings of institutional histories of Bharat Bhavan, Kala Bhavan, J&K Academy of Art, Culture & Languages and Fine Arts Faculty of Vadodara. It proposes re-visitations of certain historical moments, speculating and re-enacting spatial dynamics of collectivity.

Some of the groups, collectives and contexts that will be brought into discussion are Cholamandala Artists' village, Weavers' Service Centre, Baroda Art Fair, Astitva Collective, Sahmat, Open Circle, CAMP, Sarai Reader 09 etc.

SHIV NADAR UNIVERSITY
CELEBRATED ITS THIRD CONVOCATION

Shiv Nadar University, India's leading private comprehensive, research driven, multidisciplinary university and the reigning young University of the Year [FICCI Awards 2016] celebrated its third convocation on 13th May, 2017. Along with the graduation of its largest undergraduate batch yet, the convocation also marked the passing out of the University's first two doctoral students. A total of 440 students received their Doctoral, Master's and Bachelor's degrees from various streams including Engineering, Natural Sciences, Humanities & Social Sciences, Business and Arts.

Mike Lawrie, Chairman, President & CEO, DXC Technology attended the event as the Chief Guest and addressed the gathering. The Shiv Nadar University also conferred Honorary Doctorate on Dr Jagdish Sheth, a renowned scholar and internationally recognized thought leader and one of the foremost authorities in the world on marketing and consumer behavior.

VIDYAGYAN
STUDENTS ACES BOARD EXAMS; AUSTRALIAN HIGH COMMISSIONER TO INDIA INAUGURATED THE 'GREENHOUSE CENTER OF LEARNING'

A total of 380 students appeared for their board examinations this year at VidyaGyan. A whopping 259 students (~2/3rd) scored above 80 percent, out of which 99 students scored 90 percent or above. The average score of the students in both the schools stood at 83.3%, which is better than most of the well-known urban schools. Swati Verma from VidyaGyan's Sitapur campus topped the school with 96.8% while Saurabh from VidyaGyan's Bulandshahr campus stood second with 96.4%.

On April 20th 2017, Australian high commissioner to India, Ms Harinder Sidhu inaugurated the 'Greenhouse center of learning' at VidyaGyan Sitapur. The center is aimed at facilitating an inspiring, innovative and creative learning environment for the students of VidyaGyan and comprises three open and glass topped class-rooms.

SHIV NADAR FOUNDATION

- Shiv Nadar Foundation was established in 1994 by Shiv Nadar, Founder, HCL – a US$ 7.5 billion leading global enterprise

- The Foundation is committed to the creation of a more equitable, merit-based society by empowering individuals through transformational education

- The Foundation pursues the philosophy of 'Creative Philanthropy', which envisages creation of institutions that continue to impact future generations for many centuries to come

- Total number of students and alumni – 21,000

- Investment till March'16 – Rs. 37,000 Mn (US$ 550 Mn)

K-12 EDUCATION

VIDYAGYAN
|| VIDYA PARAM AISHWARYAM ||

2009
Leadership Academy for meritorious rural underprivileged children

SHIV NADAR SCHOOL
Education for Life

2012
Chain of urban K-12 schools to create lifelong learners

HIGHER EDUCATION

ssn

1996
Ranked amongst India's top engineering colleges

SHIV NADAR UNIVERSITY

2011
Student-centric, multi-disciplinary & research-oriented university

MASS INTERVENTION

SHIKSHA

2012
Technology-based educational intervention envisioning the eradication of illiteracy

KIRAN NADAR MUSEUM OF ART

2010
Building awareness and propagating modern and contemporary Indian art

SHIV NADAR FOUNDATION

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