

SPECIAL CONVOCATION
and the
SIXTIETH
ANNUAL CONVOCATION

24 December 2015

ADDRESS BY

GUEST-IN-CHIEF

PROFESSOR ANIL KAKODKAR
INAE Satish Dhawan Chair Professor
Bhabha Atomic Research Centre



JADAVPUR UNIVERSITY

KOLKATA 700 032

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RESEARCH ASSISTANT
JAMES H. HARRIS
1963-1964

RESEARCH ASSISTANT
JAMES H. HARRIS
1965-1966

RESEARCH ASSISTANT
JAMES H. HARRIS
1967-1968

RESEARCH ASSISTANT
JAMES H. HARRIS
1969-1970

Convocation Address

by

Anil Kakodkar*

His Excellency the Governor of West Bengal and Hon'ble Chancellor of the Jadavpur University, Shri Keshari Nath Tripathi, Prof. Suranjan Das, Vice-Chancellor, Jadavpur University, Professor Avinash Dixit, Dr. Srikumar Banerjee, Prof. Goverdhan Mehta, members of management and academic bodies of the University, faculty, staff and students, distinguished invitees, ladies and gentlemen.

Let me at the outset thank Hon'ble Chancellor, Hon'ble Vice-Chancellor and the authorities of the University for inviting me to this convocation. I am indeed happy to be here at this University which has its roots in National Council of Education and Bengal Technical Institute that were created by several thought leaders and nationalists in the freedom struggle of India including eminent people like Rabindranath Tagore, Aurobindo Ghosh, Raja Subodh Chandra Mullick, Taraknath Palit and many others who felt the need for setting up institutions which would impart education along nationalist lines. Jadavpur University with full autonomy came into existence on this day in the year 1955 out of these institutions through an enactment of West Bengal State Legislature, with the

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concurrence of the Government of India. The University is known for its research and is highly ranked. I had an occasion to come here earlier in connection with a TIFAC activity with which I am associated.

Convocation is a special day in the calendar of an Institution of learning. It marks the culmination of a phase of learning and after having satisfied that the student is now ready to face and contribute to the world at large in the chosen domain of learning and training, as a worthy individual, the elders give the final advise and blessings for further journey that the student is embarking upon. It is a solemn occasion for the students and also the teachers. The bond between the teachers and the student that is supposed to have been built through years of mentoring brings in an emotional content to the Convocation day. I wish to use this occasion to thank the faculty who in their own way have contributed to shaping the young minds while they are with the University.

Before moving further, let me congratulate Prof. Avinash Dixit, Dr. Srikumar Banerjee, Prof. Goverdhan Mehta and Justice Ravi Dhavan for the award of Honoris Causa doctorates by the University. My congratulations to all students who are graduating today. Some of you, who have been specially recognized, deserve our highest appreciation. All of you have gone through your respective courses of studies and have been adjudged to be worthy of the degrees that have been awarded to you. You are now ready to face the exciting world out there. As an educated individual you have to be an important part of the nation building process through your respective

capabilities that you have acquired here. Today there is ample scope for innovation and entrepreneurship. The way our country is evolving, the opportunities for the capable ones will continuously expand. I wish all of you graduating today a very successful career ahead. May all your dreams be fully realised.

I have spent almost entire professional life on development of national capability in the area of atomic energy. Last few years, I am devoting time to challenges related to energy, education and leveraging science for societal development. A key aspect that I have realised as a result of this experience is the need to transform our education to make it a more effective human resource building exercise that empowers every youth to become a prime mover to take the country forward and to add net value rather than become a net burden on the society. This must happen in the present day context. At the same time our education system should recognise the needs of emerging tomorrow and lead the efforts to prepare our society for the changing paradigm. I would like to use this occasion to talk about this theme.

We Indians have a great heritage. India was a premier country in the world till about five or six centuries ago. We had great Universities and centres of learning that attracted scholars from many parts of the world. After a long period of oppression and foreign rule, India is now bouncing back. Democracy has taken roots in independent India. Indian youth have demonstrated their capabilities through their impact both in technological as well as in economic terms, here as well as in countries abroad. The world is now highly interconnected and A3 (anyone, anywhere and

anytime) connected society is fast taking shape. We are fast embracing knowledge driven economy worldwide. Technology has become a powerful force multiplier that greatly enhances human performance. We are likely to see much greater symbiosis between human and machine intelligence with far greater opportunities for human creativity. Technology is thus changing our lives faster than we would have ever imagined. Clearly technology is the key to staying ahead in today's competitive world. We also need to be conscious about the impact of new technologies and prepare our societies to benefit from them while preventing their ill effects. Opportunities and threats created by increasingly competitive interconnected world, the potential for greater disparities if the policies are not managed well and threats to our time tested value system, are some of the major challenges before our society today. Our universities must therefore pursue the twin track of advancing frontiers of knowledge in all domains and facilitate a conducive learning environment as well as translating new knowledge into frontline technologies that benefit the nation through a carefully nurtured innovation ecosystem ahead of others.

We must also acknowledge that apart from people who engaged themselves in mass movements at different times, a very large number of individuals have made key contributions in shaping the societal evolution in a healthy manner and in the right direction through their wisdom, sustained work and passionate contributions. For example, there have been people who engaged themselves in scholarly pursuits and research and made new discoveries here well ahead of others. Others pursued social

reforms in spite of several odds. Then we have had far sighted pioneers who established key industries within the country in much adverse circumstances. We need such people, in large numbers, who can guide and shape the society as it evolves through knowledge and technology driven transitions on one side and rapid mixing of cultures driven by instant communications that take place today, on the other. Such people, through their research and analysis based deeper understanding and foresight, can present an authentic assessment of the transitions around, create innovative approaches to maximize the gains and minimize the threats and help prepare our youth with the capability to effectively deal with the evolving situation. The very fact that Indian traditions and culture have survived through centuries of external influence gives us the hope about our societies responding correctly to the changing paradigm.

All of us associated with knowledge activities one way or the other, have the opportunity to be a part of such people both by ourselves as well as through the students whom we teach and mentor. Through our teaching which should be all the way up to the frontiers of knowledge, through our research which should push the frontiers of knowledge forward, through development of technologies at the cutting edge, through nurturing a spirit of innovation and entrepreneurship and with strong commitment to our time tested value system, we have the opportunity to nurture individuals who can be an important part of people who can shape the destiny of our nation. We all must resolve to make that happen through our respective pursuits of scholarship, research and engagement with society and industry around.

I strongly believe that, for students in higher education system to be fully equipped to be able to effectively engage with development and growth processes in the society, the nation and the world at large, we must pay simultaneous attention to multiple layers of learning. These layers include,

- 1) Learning all the way up to the frontiers of knowledge in chosen subjects in an ambiance of research that continuously pushes those knowledge frontiers forward,
- 2) Gaining proficiency and hands on skills in procedural knowledge related to chosen areas of new creation, services and other socio- economic-cultural activities, and
- 3) Engagement with society and environment in the context of learning being pursued and exposure to basic human values.

Unfortunately, today our education institutions do not provide a comprehensive ambiance for these layers of learning. In addition, we have barriers for students to benefit from a holistic learning experience through participation in all these layers simultaneously.

A time tested way to facilitate a holistic learning environment is to link imparting of knowledge with socially useful productive work (SUPW) while in our education institutions. Through this mode, the education domain can simultaneously contribute to capable human resource as well as to new inputs for our society as well as our industry through:

- 1) New innovations based on latest knowledge acquisitions ahead of others. This would create a superior edge for our country in terms of new products

and processes giving us a competitive edge in the global market.

2) Linking knowledge institutions to ongoing socio-economic activities in business/industrial entities to overcome obsolescence issues and maintain/regain their competitiveness and

3) Exploring issues of development of strata at or nearer to the base of socio-economic pyramid and devise as well as implement solutions to minimize disparities in our society.

I do believe that linking education and development this way would significantly enrich higher education while at the same time paving the way for development on a more sound footing in a bottom up mode.

Today, our total expenditure on R&D in India is comparable to or larger than countries like Israel, Canada, Sweden, UK, Switzerland, Finland etc. and our spending in R&D per full time equivalent scientist is also comparable with countries that have highest spending in this regard. India should thus have been a technology super power at least comparable to countries listed above. Unfortunately, barring a few exceptions, we are still very dependent on other countries for our technology needs. While there is definitely a need to enhance our R&D spending, the need to bring in better accountability in terms of outcomes in our S&T system is perhaps equally, if not more, important and urgent. This is a challenge that our knowledge institutions and our industries must meet at the earliest.

It is important that our research is driven by important problems rather than just pursuing what can be done

or what is more fashionable. Handling important problems – and they may be important either in knowledge context or in technology context - by and large would need a multidisciplinary approach involving a large number of researchers or teams working together. In either case, where ever possible, there should be translation of new research findings to new technology products. The ecosystem for this purpose should also involve entrepreneurs along with other professionals capable of supporting such a translation effort. I am aware of the ongoing efforts here at Jadavpur and few other Universities in the country in this context. However much more needs to be done.

We should also explore opportunities to engage in R&D of relevance to society. There are many possibilities of technology being brought to bear on societal issues. Low cost hi-tech solutions capable of meeting the needs of poor people in remote and rural areas are becoming increasingly important for a country like India and many other developing countries. Such solutions should be capable working within the expertise of local people rather than high level experts who are unlikely to be available locally. This is of particular significance in the context of agriculture and rural development. Our students getting exposed to such developmental activities would not only give them a good problem solving experience but also emotionally bind them with India in true sense.

We need to recognize that the above approaches would invariably involve interdisciplinary efforts involving sciences, technology, engineering, medicine, humanities, economics, management and other disciplines depending on the objectives of a particular

development effort. Opportunities for students to participate in applications of such interdisciplinary efforts to address a particular challenge enable a holistic learning experience for them. Alongside this builds the capability to focus R&D to solving real life problems that need to be solved rather than looking for problems that can be solved through research one is engaged in. Quality of education as well as of research improves considerably in the process.

I do wish that all of you would give some serious thought to these issues and decide your respective course of action. It should be our collective effort to progressively move towards making the world a better place to live. Through a lifelong learning process and maintaining our knowledge institutions, industry and society interconnected with each other, each one of us, regardless of career we decide to pursue, can meaningfully contribute to this objective. After all we are all here in this world to play our respective roles. Our happiness and joy of life depends on how well we play our roles.

To dear students, I would once again wish all of you well in your further pursuits. I am certain you would rise progressively in your respective careers. I do hope that as you rise, you will retain in you a spirit of trusteeship and contribute substantially to your roots, the society around, the institutions that brought you up and the nation at large. It is this spirit of trusteeship and the desire to support others who were not as fortunate or as successful as us that makes this world a better place. We must remember that our happiness depends on the happiness all around us.

Once again my best wishes to you all.

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