



Connecting Thinkers...

From the Pro-VC's Desk

The month of August marks an important milestone for our Doctoral and MPhil students. It is in the month of August of an earlier year that our Doctoral students formally joined the Ph.D. program. For some it will mark completing their course work and defending their Research Proposal. For others it would symbolize completion of data collection or analysis or even preparation of the final draft of their Thesis. For our M.Phil batch of August 2015, the phase of writing their dissertations would have begun.

In August we also welcome a new batch of our Ph.D. and M.Phil students. We are in the process of completing the admissions and formally inaugurate the Course work on 18 August. We at Jain University, are eagerly looking forward to welcoming this new batch of researchers. We have planned a wide range of research activities for the year. Every month we are planning a research event. For August, there is an Advanced Workshop on Structural Equation Model being organized. For September, we are proposing a Workshop on Writing a Research Article. An email is being sent on the same to all researchers.

At Jain University, we are extremely proud of the many achievements of our Research Guides and students. Whenever brought to our attention, the same is being highlighted in Thinklet. Do send an email to the Editors if there is some information or achievement you would like to share with the Jain University Research community. We would be delighted to receive feedback from readers.

All the best!
SANDEEP SHASTRI

ACHIEVEMENTS

Ms. Appaji M Ashwini , a doctoral scholar in Biotechnology, CPGS Jain University, along with two colleagues, has won a challenge at the med4dev hackathon organized at Bangalore from 22nd to 24th July 2016. The team has won a cash prize of \$1500 in the challenge focused on 'Real Time, Personal Monitoring Device for Pregnant Women in Remote Areas'. The hackathon was simultaneously conducted in four places including Bangalore, Hyderabad, Mumbai in India and Tel-Aviv in Israel. We congratulate Ms. Ashwini and her team for having won the challenge. Team Thinklet wishes her All the Best for future endeavours.

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GUIDE'S COLUMN

Fire Safety: The Indian Scenario

Fire safety of built environment is an important aspect which is often neglected due to society's complacency and is often replaced by kneejerk reactions when there is a major fire. It is important to recognize ensuring fire and life safety is an integral aspect of planning of built environment. Also, any change in use of built environment needs to be periodically monitored for fire safety compliance. India is experiencing a surge in development. Growing India has created the need and ample opportunities to contribute to fire safety.

High rise buildings hamper rescue and higher toxicity of smoke reduces available egress time. Survival instincts of urban residents are getting blunted due to sedate life and availability of conveniences offered by gadgetry.

Population concentration in urban areas has increased resulting in vertical growth of cities. Increase in industrial output has increased energy/fuel demand. Composition of interiors of modern buildings is getting altered. Use of conventional wood based products for interiors is being superseded by plastic and related products. Exotic plastics are being put to use with possibility of highly toxic smoke release in the event of fire hazard. For example, high rise buildings hamper rescue and higher toxicity of smoke reduces available egress time. Survival instincts of urban residents are getting blunted due to sedate life and availability of conveniences offered by gadgetry. These aspects contribute to newer challenges in ensuring fire safety providing opportunities for research and development.

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Improvement in fire safety can be addressed in active mode – by providing fire fighting mechanisms like extinguishers and sprinklers or passive mode – by improving the ability of combustible material to resist ignition. These are being met by imported certified fire safety products which are expensive. Local replacements may not stand the rigors of fire. Testing and certification processes need to be in place to ensure the possibility of introducing meaningful regulatory measures. Jain University has recognized the opportunities towards research and training in these areas and has entered into a cooperative agreement with Underwriters Laboratories (UL) of USA to enable commercial testing and certification of fire extinguishing media. It has invested into creating a modern 200 m² state-of-the-art facility at its global campus at Kanakapura. Even during the period of the creation of this infrastructure, more than a hundred out-door fire tests have been conducted on extinguishing media over the last three years from various indigenous manufacturing sources. One part of the future efforts will see the enhancement in the number and the variety of fire safety related tests. The second part includes the conduct of short term training of practicing engineers on fire safety and research on understanding the fire behavior in industrial and domestic environments. New opportunities for interaction with scientists in India and overseas as well as sensitive practitioners of fire safety will be created in the facility for the spread of greater fire safety of built environment.

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Art Matters and Creates Meaning: Impact and Importance of Early Childhood Art and Art Therapy Programs

Observations made through recent empirical research works, and reports from the field of neuroscience concerning the benefits of art, positive emotional response and the benefits of art are rarely addressed in the Indian mental health context. Moreover, amidst our strive for growth and prosperity, our children and adolescents are developing undue psychological turmoil. As a result, today social scientists need to explore the wider impact of this rapid economic growth upon the adolescent well-being. Additionally, observing that 45.8% of normal school children face psychological problems, an inadequate attention from our society in encouraging childhood creativity could

45.8% of normal school children face psychological problems

be an important causal factor. As stated by UNESCO (Sector for Culture, 2006), creative activities such as drawing, painting, and sculpting supports children to deal with traumatic experiences. Training art-educators to analyse emotional content and suicidal ideation in the students' art works would be worth the effort required in identifying and subduing their bereavement. Advantageously, art therapy is a novel psychotherapy model that analyses the art works for emotional, fatal, social problems etc. Hence, it is a worthy conception to adopt this approach, which might aid in developing coordination between children, teachers, and therapists. In conclusion, art programs introduced along with art therapy is an added advantage in early childhood for social and emotional well-being, cognitive development, eye-hand coordination and motor skills. Subsequently, young children involved in this multi-modality can further improve on their problem solving and critical thinking and step into adolescence with eminence and confidence.

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‘Why Ph.D ?’

When I started my PhD in 2012, I was aware that it's not going to be an easy ride. In my entire life, anything I chose was either suggested or directed by someone, whether it was the selection of school, college for admission, what subject to opt for and later even the type of job I would be working for throughout my life. I did my Master's in History and then moved on to an MBA course resulting in a marketing

I got a unique opportunity to give a fresh start to something that I have been longing for.

job. But there was always a constant itch to not leave the track which gave me my Master's degree.

When I left the marketing job to support my family, I got a unique opportunity to give a fresh start to something that I have been longing for. One thing which I didn't ask for anybody's permission or even suggestion was to get into research, which came truly from within. That is how I enrolled into

PhD. This PhD degree is special to me, not only because it gives an intellectual tag or an opportunity

to undertake teaching duties but to also take a step to break free from my old established way of life and made me understand the purpose of education and methods to learn the subject.

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**“ Education is not preparation for life; education is life itself ”
- John Dewey**

'In silico' Studies on Protein Therapeutic Agents

Proteins are macromolecules which have the most diverse and dynamic role in the body, forming receptors and channels in membranes, catalysing biochemical reactions, providing extracellular and intracellular support. Their functions can only be understood when their three dimensional structures are known. Biophysical methods such as x-ray crystallography, nuclear magnetic resonance (NMR) and high-throughput screening, have been efficiently used to determine 3D structures of macromolecules through these methods are very expensive and time consuming. Consequently, there is a little data regarding protein 3D structures which are directly correlated to their functions. Currently there exists a need to analyse the mechanism underlying the mode of action of protein therapeutic agents at molecular level using new techniques like bio-informatics, systems biology and chemo-genomics. These disciplines try to learn, analyse, and interpret biological data to derive theories and models to predict biological outcome. In 'silico' methods such as homology modelling, threading and 'ab initio' are used to reduce the time and cost related to 3D structure prediction. Protein 3D structures and molecular functions can be predicted and understood by considering thermodynamic, structural and kinetic issues. Structural bioinformatics approaches combined with chemo-informatics and suitable experimental approaches have been extensively used to design new therapeutic agents. The above mentioned challenges has inspired us to apply bioinformatics methods so as to gain more insight into the structure and function of few selected proteins therapeutics agents by using a wide range of computational methods for sequence analysis, molecular modelling, molecular docking and molecular dynamics simulations.

There exists a need to analyse the mechanism underlying the mode of action of protein therapeutic agents at molecular level using new techniques.

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Women Empowerment Across India

Women in India make up 7.5% of the world's total population. While certain development indicators show their quality of life is improving such as maternal mortality rates declining; literacy rates increasing; more women gaining access to healthcare and education; the pace of such empowerment is slow. Employment in general and self-employment in particular, is intimately connected with women's empowerment. Self employment in the context of women plays a significant role in connecting them with work. The key factor in the empowerment of women is the economic area. Women's active participation in economic activities leads to their overall empowerment and economic development of the nation.

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As Indian women were assessed from the cross sections of the country, it was observed that women in each zone possess distinct empowerment factors. The following facts were revealed during my research study. Rural women in North India decide on their requirements of the business based on their budgets and purchase the items with their savings. The women in North India

have the maximum access to technology compared to other women. The members of self help groups in the Western India work in unity compared to other regions. Women in Western India take decisions on behalf of their family. The rural women in Eastern parts of India possess leadership qualities. Work areas of East Indian rural women revolve around agriculture. Occupations such as doll making and weaving are restricted to men. Women in South India are better qualified compared to women in other regions. Women in Southern parts of India wish to maintain their financial independence at all times and do not want to be dependent on their children in old age.

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From Being ‘Prejudiced Investors’ To ‘Informed Investors’

During the course of my training assignments, I have been retained as a resource person by a few financial institutions where I deliver lectures to individuals across states in carrying the message of how people should become ‘informed investors’ and further create awareness about the pros and cons of various financial assets. The capital market regulator Securities Exchange Board of India (SEBI) has made it mandatory for financial institutions to invest money and resources to educate people across the strata based on which such sessions are conducted.

From meeting and interacting with less educated people at mofussil towns, where most of them are not exposed to financial literacy, what surprised me was their level of literacy about financial products and services compared to the bigger cities, where access to information is much higher. Most people I meet at these places are management graduates, engineers and also successful businessmen and executives, but their level of awareness on financial products is so poor that they continue to be prejudiced about certain asset classes and are inclined towards products that they should not be investing in. This approach by people and their knowledge levels gives me immense opportunity to transform them from being “prejudiced investors” into “informed investors”. I am glad my research endeavors as a scholar at Jain University has given me the right platform to research on these areas and deliver effective lectures that is helping the cause of the market regulator to transform people at the grass root level.

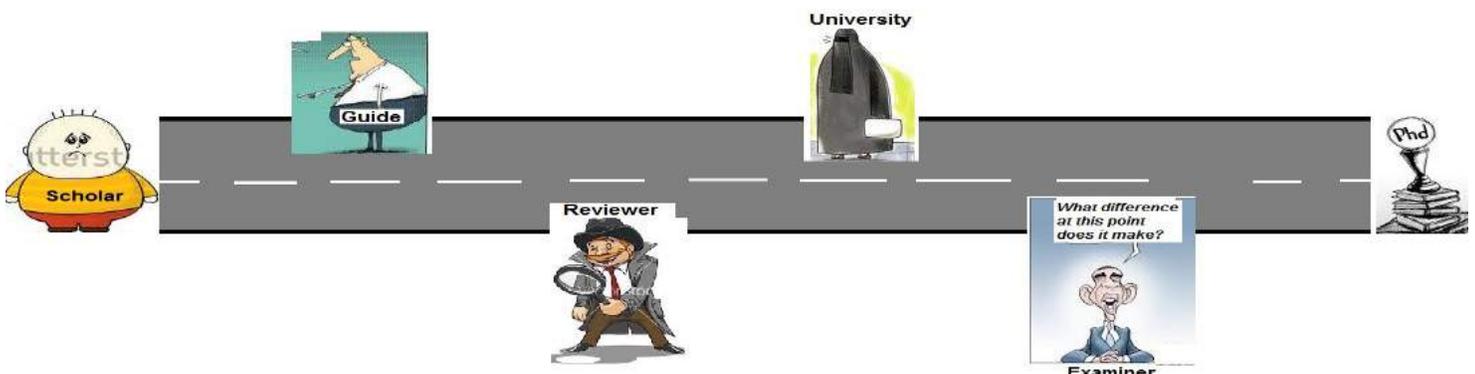
Level of awareness on financial products is so poor that they continue to be prejudiced about certain asset classes

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Stress vs. Planned Stress: A Tale of Survival of Tiny Minis

Poikilothermic organisms like insects lack the ability to regulate their internal body temperature, which in general is a disadvantage but nature has evolved this inability to bring out another interesting phenomena of survivorship called ‘dormancy’. Dormancy is a generic term covering a state of suppressed development: achieved either by unplanned (quiescence) or planned (diapause) mechanism. The capability to pass through adverse periods during seasonal fluctuation is essentially dependent on the adopted mechanism which is genetic, epigenetic or both. Quiescence is mostly seen as an immediate stress response without any planned metabolic regulation as a result of environmental limitation of factors while diapause is profound, planned and genetically programmed response. Though diapause state lasts for more than 9 to 10 months, insects face a huge challenge of nutrient storage and utilization. As via diapause poikilotherms enter into an alternative developmental pathway, the regulatory mechanism behind this is managed at different eco-physiological phases. Each phases controls different regulators like endocrine hormones (diapause hormone, ecdysteroids, juvenile hormone etc), storage proteins (molecular chaperons), circadian rhythm genes (*period, timeless, dClock, cycle, doubletime, vrille and cryptochrome*) and cell cycle regulators (Fox-O family). All these potential players bring out this dynamic planned stress handling pathway for survival.

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My Research Journey

Two of our doctoral students completed their Viva to defend their thesis. Articles on their research journey are carried in this issue .

Research is an intensive pursuit for knowledge, that requires lots of groundwork in defining the topic, formulating the objectives and hypothesis, and place of research. My research journey was a bumpy one; but hard work, dedication and focus helped me reach my ultimate goal. There were many hurdles in my five years journey towards achieving the doctoral degree, but support from family and strong will power ultimately helped. At the start of my research, I framed a part of the questionnaire and selected standard, universal scales, to collect data. Later on in the pre-PhD viva, I was advised to use the Indian version of scales. Framing own questions posed problems of feasibility and required rigorous analysis & validity of data. I had to consult an expert to analyze data appropriately. Choosing an appropriate expert for my data analysis was another challenge. From my research experience, it is always better to choose an expert from a university/college, learn the analysis part and do the analysis individually, rather than getting the analysis done by external agencies/consultants.

Choosing an appropriate expert for my data analysis was another challenge.

I published several articles, before submission of the thesis, which endorsed the fact that my data collection, methodology and analysis were on the right track. From my research experience, I learnt that it is better to publish article with publishers like Sage, Elsevier, Inderscience, Springer, Taylor & Francis and the like. It gives extensive review of international/reputed experts and the article will be read by a wide worldwide audience.

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The biggest challenge I faced was to have a laboratory facility to carry-out my experiments

My research journey started in the year 2009, with a proud feeling of being the first candidate as a research scholar in Electrical and Electronics Engineering domain. My guide Dr. Dixit has been the greatest motivation for me to pursue research in High Voltage Engineering. In the first stage of my research journey, the research methodology classes enriched me with an insight of how a structured research should be, starting from defining the research problem from a border area to specific area in writing the doctoral thesis systematically. The very first

‘Research Retreat’ of the university in the year 2012, where I bagged best presentation award for progress in research work has morally boosted and build confidence in me.

During my research journey, the biggest challenge I faced was to have a laboratory facility to carry-out my experiments. My guide has always been with me to provide direction and to also facilitate the process, with his timely advice and help in overcoming these challenges. Understanding the literature and interpretation of experimental data has been a key factor in my research work. Along with my guide, I have been also blessed with the help of Dr. K N Ravi, Former Joint director, CPRI, who supported my research work with his motivational and technical interactions in interpreting theoretical and experimental results. Writing my doctoral thesis has been another critical stage, which was achievable only with the support of my guide. Though, today my research journey took a break with the fulfillment of my Doctoral degree, my hunger for research persists and motivates me in continuing this journey.

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REPORT ON PANEL DISCUSSION

Indian Democracy: Looking Back, Looking Forward

A government of the people, by the people and for the welfare of people is commonly termed as democracy. Jain University and Lokniti - Centre for the Study of Developing Societies hosted a panel discussion on *Indian Democracy: Looking Back, Looking Forward* on 10th July at the Knowledge Campus, 9th Block Jayanagar, Bengaluru. A good Sunday evening could not stop 100s of doctoral candidates, professors, academicians and special invitees to attend the engaging session.

The panel discussion started with the welcome and introductory address by Dr. Sandeep Shastri, Pro-Vice Chancellor, Jain University. Providing a background for the choice of the theme, he drew attention to the joint efforts of Lokniti and Jain University to study and understand democratic practices and processes in India. Over the last decade, the two institutions have jointly organized the prestigious Annual Summer School on Quantitative Analysis in Social Science Research, and this Panel Discussion was being held at the start of this Summer School. He also highlighted the point that this discussion marked the start of the Twentieth Anniversary celebrations of election studies research by Lokniti, Delhi, the South Centre of which was located at Jain University.

The content rich and engaging panel discussion witnessed expert panelists Dr. Ramachandra Guha, well known author and historian, Dr. Ashutosh Varshney, Professor - Political Science, Brown University and Dr. Suhas Palshikar, Professor - Political Science, Savitribai Phule Pune University & co-director of Lokniti. All panelists discussed and debated the present status of politics in India with a focus on legislative processes, executive actions and decline of institutions. They underscored the changing contours of politics in the last few decades. Highlighting the robustness of the election process, they wondered whether India had been reduced to an 'election only' democracy. The challenges and threats to the liberal democratic framework were also highlighted. The emerging influence of the digital media was also focused on. The session was concluded by Prof. Sanjay Kumar, Director of Centre for the Study of Developing Societies, Delhi and co-director Lokniti who summarized the arguments given by the panelists and thanked them for sparing time on a Sunday evening. He also thanked Jain University for hosting the event.

The engaging dialogue between the panelists and the audience and the two hour discussions was truly academically enriching and intellectually stimulating.

Short report: <http://www.jainuniversity.ac.in/Discussion-on-Indian-Democracy.htm>

Video link: <https://www.youtube.com/v/JO8XIweszWU>

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