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Ph.D. and Research: Treading a Difficult Path

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ABSTRACT

The Doctoral programme leads to the highest academic degree in one's life. Originally, this programme was postulated and conceived to provide platform to the young and bright minds to search for and unravel the hidden path of knowledge with demystifying the century-old irrational beliefs and misconceptions. Over the decades or so, this notion led to the dazzling array of discoveries, insightful research and conceptual understanding, unveiling the nature's working, and made the life easier for human beings around the world. However, the core purpose of research and science educations seems to be deviating from its trajectory which needs to be comprehensively introspected and rectified by all the stakeholders concerned before it is too late.

Keywords: *Doctoral programme, Misconception, Introspection*

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Introduction:

Since time immemorial, the science has been multi-pronged approach to acquire insightful understanding of the continuously occurring physical, chemical and biological processes. The relentless effort in this direction started as early as the civilization of human beings. The curiosity of knowing various phenomena continuously happening around has become an integral part of our day-to-day thinking, intellectual persuasion and cerebral fulfilment. The inspiration and enthusiasm about knowing such gazillion natural phenomena were driven by objectives of demystifying blind conception and belief, which eventually satiated our curious senses and helped eradicate mystery and irrational belief people held for centuries.

However, the dark days of irrational thoughts, misconceptions and beliefs slowly ended at the turn of the 19th century, and were slowly replaced by various rational scientific discoveries made in leaps and bounds. The science, in old days, was perceived mainly on the basis of personal observation, hypothesis and little experimentation. On the contrary, the modern science and its acceptance have mainly relied on economy-driven state of the art instrumentation facility replete with high throughput instruments, ultrapure chemicals and reagents. This sea change in the working of the research field and scientific discovery has further led to the isolation and segregation of young curious minds in wake of unjustifiable and inequitable research opportunities with widening gap between developed and underdeveloped countries' research productivity. Moreover, owing to multi-player endeavour, the research needs



multi-layered, mutual and synchronized involvement of all stakeholders, including supervisor, researchers, and additional manpower, inter-laboratory research collaboration, and rational distribution of research funding. Unfortunately, the research scenario, in most of the developing, under-developed, and to some extent even in developed countries, stands opposite to the aforementioned requisite notion and requirement. The research is being driven by infrastructure and availability of funding rather than inquisitive and logical thinking and perception. Most of the developing countries across the globe are lagging behind owing to the unjustifiable and inequitable distribution of research funding rather than dearth of skilled manpower and young researchers.

Multiple research crises and their global occurrence

To state the obvious, people with good knowledge and right thinking are being sidelined, left fumbling and metaphorically starved to death, while those with so called “Academic Godfather” or through the personal connections whimsically manage to get overwhelming funds, irrespective of rationality of their research domain and research output. This has quite long-term ripple effects on not only those currently supervising the laboratories across the country and continent but also the new generations, who are either currently pursuing the research or willing to do so in the near future. Once students with scientific temperament and budding research ambition, after obtaining his/her master degree and qualifying the National Eligibility Test, whose criteria and questionnaire are set by the premier science institutions, devotionally joins the Government-sponsored research laboratory, National universities or research-oriented corporations, his/her research carrier and output are first and foremost decided by lab-specific funding, supervisor’s attitude and calibre rather than students’ own capacity, thinking and intelligence, and merely become “the clone” of their mentors at the end of frustratingly long duration of the Doctoral programme. During Ph.D., majority of the students are not able to do what they themselves want to and have negligible say, and rather vehemently forced to do experiments as per the lab’s circumstances, which they, after initial resistance, start following religiously and lose their

own sense of research and its purpose, becoming somebody they never ever wanted to be. Moreover, by the time ones completes Ph.D., his own science interest is gone forever and would find oneself standing at middle stage of life or over the hill with identity and financial crises, and nothing else to turn to in wake of fewer job prospect. This raises a very serious question “Is it worth spending such a crucial 6-7 years of our life in research with no bright prospect at the end?” This appalling problem is quite pandemic and insidiously spreading its tentacle across the globe.

I would like to support my abovementioned conviction and stand with the help of an article entitled “*Reform the Ph.D. system or close it down*” published by Mark C. Taylor in the Nature’s column: World view (*Published online 20 April 2011 | Nature 472, 261 (2011) | doi: 10.1038/472261a*). He expressed his opinion quite frankly by summing up the various flip sides of Doctoral programme, and pragmatically concluded that “there are too many doctoral programmes, producing too many PhDs for the job market. Shut some and change the rest”. His elaboration and deliberation regarding the various inherent weaknesses of the programme, including unsustainability, self-interest of the faculty members and various stakeholders at the cost of students, pragmatically reflect everything in “nutshell”, which we all agree in one way or the other irrespective of who we are.

Concerted working, constant communication, inter-laboratory collaborations and unbiased research policy might help alleviate the research crises

However, still we have time to work through it, and research can be put back on track provided we demolish the virtual boundaries between science disciplines to let them come under single roof and flexibly interact and communicate with each other in most scientifically conducive and harmonious way possible. It’s time to emphasis more on the quality of research in wake of collapsing funding, by focussing on few functional, relevant research projects and terminating the non-functional and redundant ones. Those who want to heartily and passionately pursue research must get what they need irrespective of whom and where they work with. For this, there must be some independent

academic-adjudication platform for critical and challenging issues to make it more feasible, incisive, transparent and accountable. This entire research programme ought to be meticulously restructured and reconceived, if we are to find the long term solutions for the scientific problems staring right in the face of humanity. However, those who do not succeed in research to the extent they ever wanted to, owing to the aforementioned crises, should not resort to scientific misconduct and unethical research, including manipulation and fabrication to achieve short-lived success and, must remember that “life is science but science is not the life” and they need not to give up rather focus on with more effort and emphasis to make

their plan work in long run. My personal belief is “Honesty, perseverance, and true efforts pay off”.

Declaration: The aforementioned view expressed is purely my personal views and experiences of the past seven years in the field of research, transpired over the discussion and deliberation with my research colleagues working in various laboratories across the country. Furthermore, I do not intend to denigrate any educational institutions or individual (s) and would earnestly like to be excused if anybody’s conviction and sentiment is hurt and do not concede to my personal opinion.