

Research in Basic Science Education - Challenges and Opportunities

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Indian Science has come a long way from the days of Jawaharlal Nehru's vision and stewardship of many distinguished scientists and administrators. The creation of a chain of National Laboratories and the mission they were entrusted with, marked significant milestones.

Nowadays pure sciences are losing the best of students due to lucrative salaries offered to students with an engineering background; this can put science survival at stake. More and more students of the creamy layer prefer applied science education on account of better placement prospects.

Chidambaram (2006), the then chairman of Baba Atomic Research centre (BARC) warned that ignoring basic sciences would be dangerous. Policy makers should be cautious about limiting science to practicality. Fast track programmes and quick-fix solutions are not the way to build a scientific society.

Dr. Moolchand Sharma (2006), the then Vice-Chairperson of the UGC lamented on the declining trend in research on basic sciences. He stressed that unless we promote scope for fundamental research in Universities, we cannot use technological development for a broader base of people. This presupposes a political will leading to filling up the vacancies in a large number.

It is basic science research that provides us principles and techniques for application. If the present craze for research exclusively in applied sciences continues, then at some point of time, we would have exhausted applying all the findings of basic science research leading to a situation where we have nothing to apply. Hence research in Basic and Applied Sciences should go hand in hand.

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Enrolment rate of students in basic science disciplines are steeply declining even in the developed countries. This trend causes a great concern about future of the scientific society.

As India strives to compete as a knowledge-based economy, we ought to be the very best globally.

In India only about 9% of the youth in the 17-23 age group get an opportunity for higher education. Enrolment in science is less than 20% , in engineering and technology it is 6.6% and in medicine it is 3.3%. In an article titled "The tasks on the education front" which is an excerpt from the convocation address delivered by Bhairon Singh Shekhawat, our former Vice-President at Banaras, Hindu University, it is stated that enrolment in basic sciences is on the wane. It further reiterates that our Universities have to be the hub of quality education and research and centres of academic excellence. There is an urgent need to create a large pool of scientists.

In order to reverse the declining trend in enrolment of students in basic sciences resulting in a very limited number of research in basic science education, a few suggestions are given:

1. Instituting fellowships and scholarships for students pursuing basic science research.
2. Generating large employment opportunities to basic research scientists with ample avenues for promotions.
3. Periodic upgrading of curriculum of basic sciences to make them relevant, need-based, up to date, interesting and challenging.
4. Liberal funding to institutions carrying out research in basic sciences should be done.
5. Filling up all the vacancies for basic science faculty in all the Universities should be done at once.
6. Following the model of Indian Institute of Basic Science Education Research, Pune, several Institutions should be started all over

India and Integrated Courses at the undergraduate and Post-graduate levels should be offered with scholarship to students completing higher secondary schooling.

7. Special assistance to premier science institutions and for State Universities with significant contribution to basic sciences research should be given. This will facilitate the enhancement of the caliber of basic science research promoting institutions.
8. Andrew Z. Fire and Craig C. Mello (2006) in their article titled "Rewards of Basic Research" published in "The Hindu" reiterated that basic research will always remain the cornerstone of science. Discoveries such as the ones that won Nobel Prizes will play a pivotal role in shaping the future of research in various fields. Countries that understand this fact and adopt meaningful measures to make science research attractive, will remain in the forefront of development.

9. Evaluative studies on researches already done in National Science Laboratories and Universities in the field of basic sciences may be carried to develop a comprehensive idea and to promote areas where research is needed.
10. An exclusive Indian Basic Science Congress should be instituted and annual conference should be held.

The list is only suggestive and not exhaustive. The progress of entire humanity depends on application of the findings of research in basic science arrived at after decades of hard work and dedication by the scientists.

India occupies a prestigious position in the space science by its lunar experiments with Chandrayaan.

This proud journey will continue for ever, making the impossible, possible thereby bringing credit to every Indian who can hold his head high on the miraculous achievement.

ERRATUM

We regret to say that by oversight only abstract of article entitled "**Corporate Social Responsibility in India: Some Evidences**" authored by **Prof. (Dr.) Pramod Kumar** has been published in volume 1, number 2 instead of full article. The full article is published in this issue on page number 81.

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