PhD Programs – the Ignored Imperative

Pankaj Jalote
Dept. of Computer Sc. And Engg.
I. I. T. Kanpur
India - 208016
jalote@iitk.ac.in

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Outline

- Value of PhDs to the Nation
  - Relationship to education
  - Highest end of value chain – R&D
  - Innovation and IPR
- Increasing PhD production
  - Increase source base
  - Set targets for top institutes
  - Incentivise individual R&D
PhD Programs in India

- Most education institutes are primarily teaching-oriented
- Even IITs are primarily education-oriented
- PhD programs and research is not taken seriously almost anywhere
- An underlying belief – PhD a luxury, an over-qualification, not really relevant to India’s development

PhD Programs and Research

- Research is a religion in western univs
  - Even “lower rung” univs take it seriously
  - No one questions “why research?”
  - Value and relevance to society unambiguous
- Why we treat research as not important
  - Irrelevant to society – need basic education; industry doesn’t need R&D,…
  - Is a “western ideal”
  - No systemic incentives
Basic Thesis of the Talk

*Increasing PhDs is an imperative for us in the current scenario*
  airing Cannot keep education up-to-date; newer opportunities to tap; world shifting to IPR,..
  *“Out of Box” thinking needed to enhance PhD programs*

PhD and Technical Education

*We boast of the 3rd largest technical manpower – but training is poor*
*Main cause of poor training – poor faculty*
*Two key requirements for good teacher*
  *Possess higher level of knowledge than teaching in the course*
  *Ability to track trends and assimilate new knowledge in courses*
Technical Education...

- Both conditions are satisfied by PhD
  - Gives depth/expertise in a subject
  - Provides training to spot trends, self-learn new material, use new knowledge,..
- Relationship between education and Research not well understood in India
  - Heavy correlation between top R univs and top education places

PhD and Development of Corporate R&D

- This is a new window of opportunity
- R&D costs very high in the world
- Companies looking to set R&D centers in India
- Bottleneck – avail. of high quality PhDs
- Imagine the scenario – 100s of PhDs in Bio, Science, Engg, CS available...
  - Attracting R&D centers will be sooo easy...
Innovation and IPR

- Most sought after skills today – Creativity
- PhD is the only degree that emphasizes knowledge creation (& not learning)
- Ability for IPR creation is a key strength
- Cannot enhance it without a big leap in PhD production

Enhancing PhD Production
**Increasing PhD production**

- Is inherently slow – today’s initiatives will show results 5 years later
- Limited role of businesses in this
- Govt and educational places are the key
- “Out of Box” thinking, innovative approaches, needed

**Widen the Source Base**

- Currently, we focus on fresh graduates
- Must widen the source base to include working professionals
  - Is an important source world over
  - Requires flexibility in phd programs
  - Need “married student” scholarship
- Should support “cross migration”
Premier Institutes/Labs should set Clear Targets

- Increase in PhDs has to be anchored by top places – graduates from them will seed other places in due course
- One approach – top 10 places in each discipline should set a goal of graduating 10 PhDs each year
  - Will require govt backing
  - Innovation in recruitment

Create Incentives for Enhancing individual R&D

- No scheme will work unless the faculty and researchers want to do more research
- Currently no systemic incentive for this
- Must build individual incentives – one approach is to have variable increments based on R&D performance
- System incentives based on R&D performance are also needed
Summary

Increasing PhD production is an imperative India can no longer ignore
- Necessary for education quality, becoming R&D center of the world, IPR creation, ...

Need fresh initiatives to increase prodn.
- Increase source base; top institutes set a target of 10 per year in each discipline,..