Research at Higher Education Level: Problems and Actions Required

- Introduction
- Objectives of the study
- Sample of the Study
- Major findings

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Introduction

- R&D drivers of economic growth and development

- Capability of institutions of higher learning to support R&D (Indian Institutes of Technology, Indian Institute of Science Education & Research, National Institutes of Technology, Tata Institute of Fundamental Research etc.)

- Contribution of country insignificant

Twelfth Five Year Plan

- **Number of full-time researchers/scientists**

- **Volume of publication outputs in basic research**

- **Change global ranking Increase the**

- **Patents**

- **Commercialisation of patent portfolio from**

- **R&D expenditure**

- **Pvt. share**

- **0.15 million to 0.25 million**

- **global share of 3 per cent to, say, 5 per cent**

- **from 9th to 6th**

- **Doubling the number of patents**

- **2% to 5–6 %**

- **1% to 2% of GDP**

- **!% of GDP**

Objectives

- to identify the problems faced by the faculty of private institutions in pursuing research or creating a research culture in their colleges

- to suggest actions required at various levels to promote research culture in technical institutions

Sample

- 118 faculty members from four private technical institutions who participated in two weeks programme on Research Methodology

Major Findings

Individual Level
- Lack of motivation
- Inability to subscribe to quality journals
- Lengthy procedure of Publishing
- Inability to procure costly software
- Lack of support from family
- Lack of time

Institute Level
- Research not priority of mgt.
- Lack of sponsorship policy
- No earmarked funds
- Non-availability of journals
- Administrative responsibilities
- Non- availability of software
- Lack of technical support
- Lack of incentive policy

University Level
- Lack of uniformity of guidelines
- Multiple entrance examination
- Course work varies
- Limited seats for PhD
- Selection of Guide

Government Level
- Lengthy procedures for obtaining
- sponsored projects
- Limited scholarships/fellowships

ACTIONS REQUIRED TO CREATE RESEARCH CULTURE

S.No	Action	SA	A	I	DA	SD
1.	Offer ME/MTech programmes	59.3	29.7	5.9	4.2	0.8
2.	Offer collaborative programmes with foreign universities	47.5	49.2	1.7	1.7	0.0
3.	Plan faculty exchange programmes with foreign universities	53.4	41.5	3.4	1.7	0.0
4.	Plan student exchange programmes with foreign universities	41.5	44.9	11.9	1.7	0.0
5.	Assign research based projects to students	74.6	25.4	0.0	0.0	0.0
6.	Constitute multi-disciplinary teams of students for research based project work	58.5	33.1	8.5	0.0	0.0
7.	Keep the laboratories/ workshops open 24x7	43.2	46.6	8.5	1.7	0.0
8.	Provide incentives to faculty for undertaking research/ consultancy projects/ published work/ patents	74.6	24.6	0.8	0.0	0.0
9.	Provide scholarships to students for undertaking research projects	67.8	32.2	0.0	0.0	0.0
10.	Provide financial support to faculty for attending and/ or presenting papers in conferences and seminars with-in and outside India	72.9	26.3	0.8	0.0	0.0
11.	Provide financial support to students for attending and/ or presenting papers in conferences and seminars with-in and outside India	71.2	27.1	1.7	0.0	0.0
12.	Organize seminars & conferences in emerging areas	64.4	32.2	3.4	0.0	0.0
13.	Involve students in consultancy or sponsored research projects undertaken by faculty	46.6	46.6	6.8	0.0	0.0
14.	Create problem bank by gathering information from society	34.7	54.2	10.2	0.8	0.0
15.	Constitute teams of students to undertake surveys to identify research problems	44.9	46.6	7.6	0.8	0.0
16.	Organize industry-institute meets to gather information about the problems faced by industry	56.8	41.5	1.7	0.0	0.0
17.	Join hands with industry to set-up incubation centres at institute campus	61.9	37.3	0.8	0.0	0.0
18.	Ensure that faculty integrates research articles in teaching	39.8	52.5	6.8	0.0	0.8
19.	Ensure that students by teachers are encouraged to write articles based on research	54.2	43.2	1.7	0.0	0.8
20.	Ensure that students are encouraged by teachers to put a critique on research articles	36.4	60.2	3.4	0.0	0.0
21.	Ensure that students are encouraged by teachers to review literature and identify gaps in research	60.2	37.3	2.5	0.0	0.0
22.	Ensure that curriculum includes contents based on research in the area	47.5	47.5	3.4	1.7	0.0
23.	Provide autonomy to technical institutions to design their own curricula for various courses	33.9	45.8	11.9	5.9	2.5
24.	Make it mandatory for the students of MTech/ME to publish at least two papers before submission of dissertation/thesis work	39.0	47.5	8.5	1.7	3.4
25.	Train faculty in the area of intellectual property rights	37.3	56.8	5.9	0.0	0.0
26.	Train students in the area of intellectual property rights	33.9	58.5	7.6	0.0	0.0
27.	Strengthen and modernize facilities in laboratories and workshops	74.6	23.7	1.7	0.0	0.0
28.	Collaborate with other technical institutes in vicinity to set-up high tech labs	72.0	25.4	2.5	0.0	0.0
29.	Provide access to online journals-national and international	87.3	12.7	0.0	0.0	0.0
30.	Earmark funds for encouraging research	66.9	32.2	0.8	0.0	0.0

TOP TEN ACTIONS REQUIRED

Actions Required to Promote Research Culture

- Multidisciplinary teams of students to take up projects
- Subscription to online journals of repute
- Research based projects for students
- Provisions for incentives
- Strengthening of research facilities
- Financial support to teachers for conferences etc.
- Financial support to students for conferences etc.
- Institutions to collaborate to set up high tech laboratories
- Institutions to organize conferences etc.
- Industry institutes to collaborate to set up incubation centres