

# **INTEGRATION OF RESEARCH AND EDUCATION**

## **Or, How to Innovate by Connecting Your Research with Education**

Today, government and other funding sources are increasingly looking for innovative ideas in the research and education projects they support.

Academic research and development is becoming increasingly multidisciplinary and, typically, innovation in university-based research has led to new devices and processes that serve a societal need. Much of that is focused on laboratory experiments or on innovative development of theories.

Also gaining importance in recent years, something that is not easy to achieve, is innovation arising from the integration of research and education.

University and industry leaders, at the top of the funding chain, continue to encourage research innovations that lead to new inventions that will benefit mankind. Indeed, generally, research universities and higher education institutions with a practical, relevance focus have always had society as the main stakeholder.

In this environment, faculty and students are enthusiastically focusing on “INNOVATION” and “RELEVANCE” in their work. Faculty who have been engaged in traditional, “pure” research endeavors are now eager to connect their work with education. After all, the work is carried out at education institutions.

### **(A) Practical approaches for conceptualizing your innovation research projects**

1. Carefully consider, discuss and justify the education motivation for you to undertake the research at your institution, an education institution.
2. Broadening research to include an education component as a means of promoting innovations.
3. Broaden education of students to include research.
4. Provide research-based curriculum development.
5. Provide research experiences for students.
6. Incorporate international cooperation.

### **(B) Practical approaches for reporting results of your research projects**

1. Include publication statistics of papers co-authored with students.

2. Address student participation in the research, how they were selected, their qualification, etc.
3. Though somewhat superficial, showing some photos of lab equipment and also students at work on experiments sometimes go a long way toward showing student involvement.
4. A graph or two showing typical results obtained by the students.
5. A brief discussion how the research results have been used or planned to be used in the classroom or in course materials.