

Global Center of Excellence for Mechanical Systems Innovation

Mamoru Mitsuishi, Professor
Department of Mechanical Engineering,
School of Engineering, The University of Tokyo

- Established in 1877 as the first national university
- College of Arts and Sciences, 9 faculties, 15 graduate schools and 11 institutes
 - Academic and Administrative Staff: 7,500
 - Students: Undergraduate:14,000, Master: 7,000, Doctor: 6,000
- Main campus located in Hongo Bunkyo-ku, Tokyo
 - About 56 hectares of the former Kaga Yashiki
 - Parts of the seventeenth century landscaping
 - Red gate: Important Cultural Property by the Japanese Government

Akamon



Yasuda Auditorium



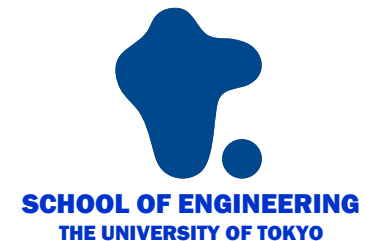
Ginkgo tree



Sanshiro Pond



- Graduate departments: 19, plus courses by guest professors and sponsored courses
- Undergraduate departments: 17
- Professors: 153, Associate Professors: 113, Lecturers: 25, Assistant Professors: 125, Total: 416; Staff: approx. 1,000
- Students:
 - Undergraduate: 2,165
 - Foreign students: 97
 - Master course: 2,034
 - Foreign students: 334
 - Doctor course: 1,088
 - Foreign students: 445, Other foreign students: 151, Total foreign students: 1,027



Reppin-Kan



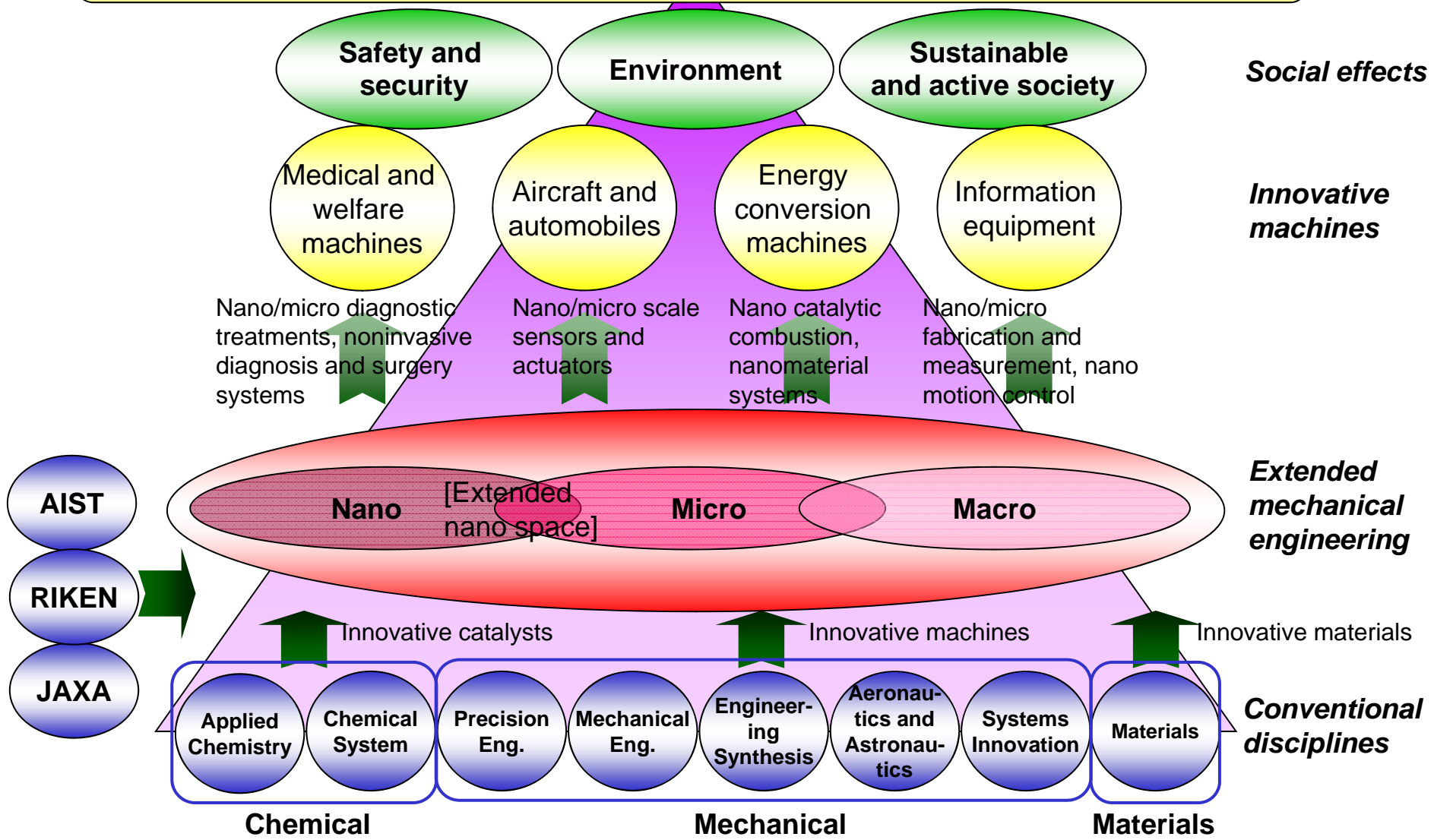
Eng. Bldg. 1



Eng. Bldg. 2



Creation of innovative machine systems that utilize nano-scale phenomena and establishment of an academic discipline based on them



Principle of human resource development:

The program aims at the cultivation of the following items:

(1) Fundamental attainment

Natural sciences, such as mathematics, physics, chemistry and biology, and fundamental social sciences

(2) Specialized knowledge

Specialized knowledge, such as mechanical dynamics, mechanics of materials, hydrodynamics, thermodynamics, design engineering, manufacturing engineering and material engineering, and bird's-eye-view knowledge on technology, society and the environment

(3) Literacy

Language, information literacy, technological literacy and knowledge of the law

(4) Competency

Creativity, problem identification and solution, planning and execution, self-management, teamwork, leadership, sense of responsibility and sense of duty

The goal of the human resource development program:

- To cultivate internationally competitive young researchers with the ability to comprehend and generate both fundamental attainment and specialized knowledge, and the technical and language literacy and competency.
- It is expected that these young engineers will be well-prepared to be the future leaders of industry and academia.

Overview of the education program (From the viewpoint of an RA)

To company,
to academia

A researcher

Ph.D. students and postdocs will be exposed to international approaches to collaborative research through stays of several months per year at overseas universities and research institutes.

The main- and vice-supervisors system will be introduced across the department to broaden the range of research and Ph.D. students' and postdoctoral researchers' horizons.

Project-Based Learning (PBL) projects in overseas industries will also be introduced in international internships institutes.

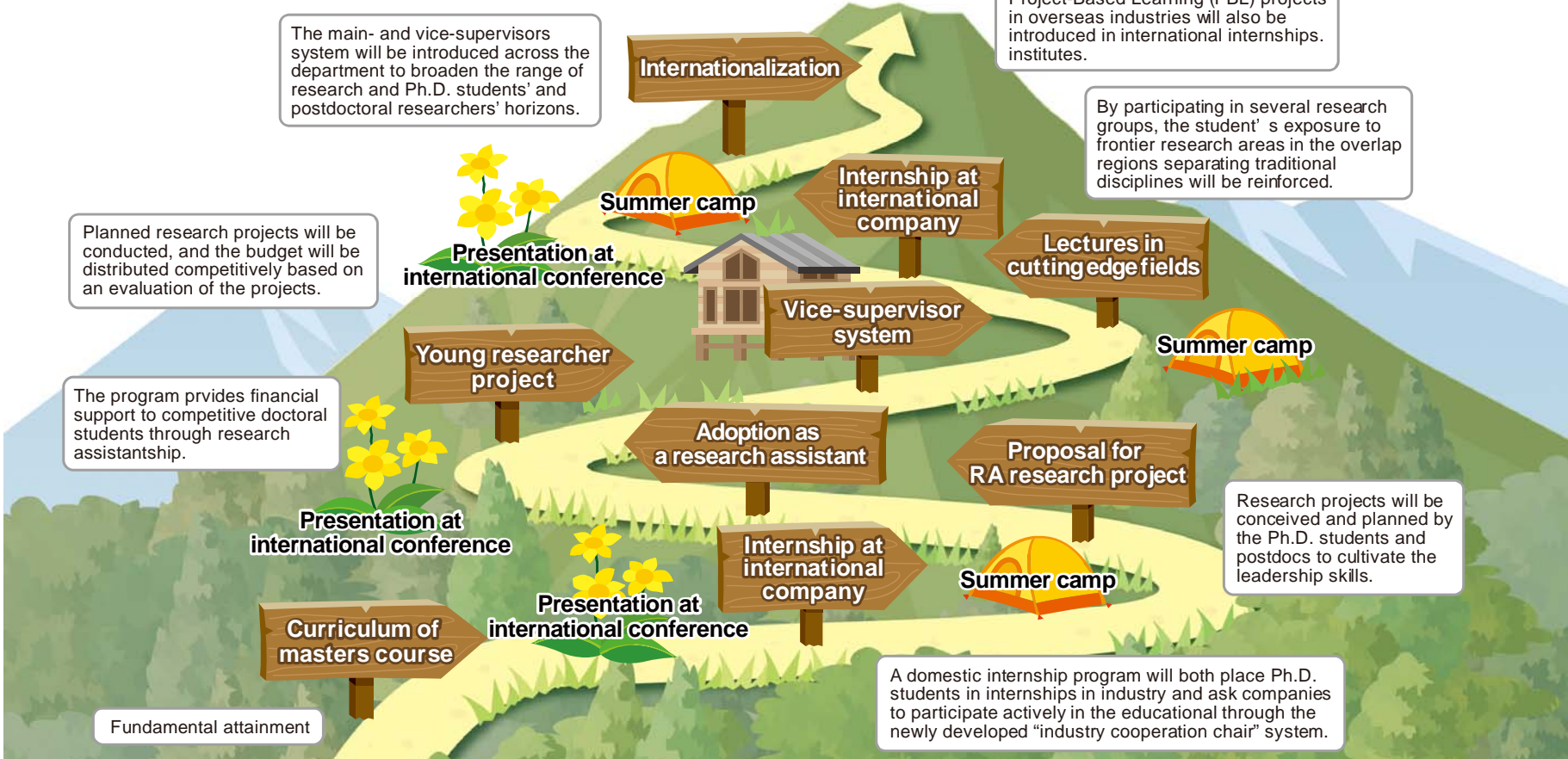
By participating in several research groups, the student's exposure to frontier research areas in the overlap regions separating traditional disciplines will be reinforced.

Planned research projects will be conducted, and the budget will be distributed competitively based on an evaluation of the projects.

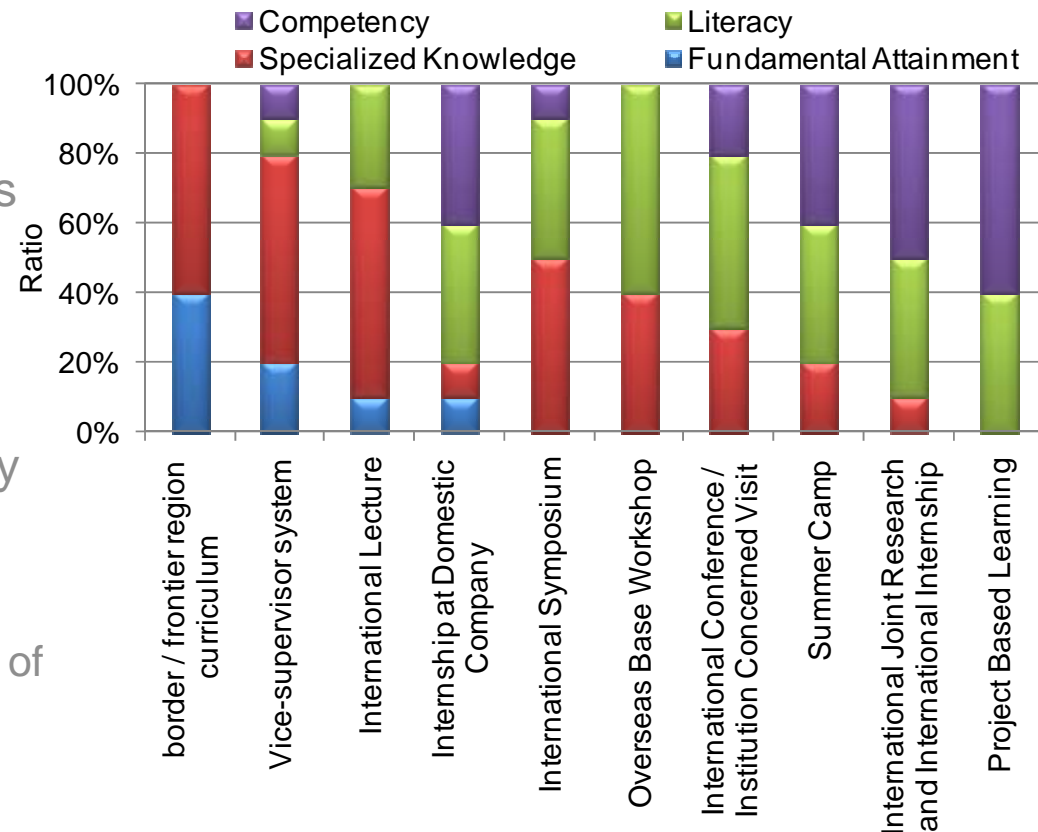
The program provides financial support to competitive doctoral students through research assistantship.

Research projects will be conceived and planned by the Ph.D. students and postdocs to cultivate the leadership skills.

A domestic internship program will both place Ph.D. students in internships in industry and ask companies to participate actively in the educational through the newly developed "industry cooperation chair" system.



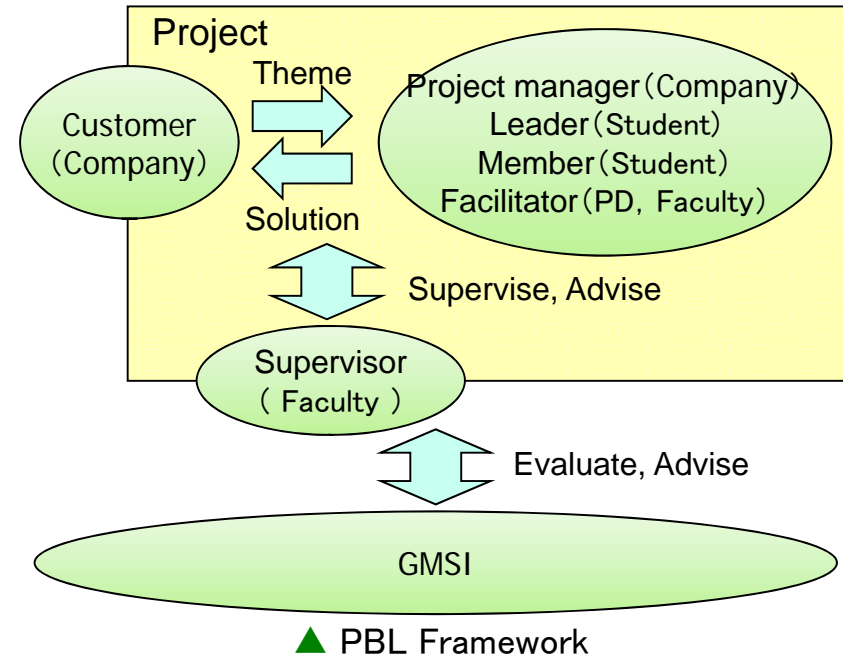
- **Fundamental attainment:**
 mathematics, physics, chemistry and biology, and fundamental social sciences
- **Specialized knowledge:**
 mechanical dynamics, mechanics of materials, hydrodynamics, thermodynamics, design engineering, manufacturing engineering and material engineering, and bird's-eye-view knowledge on technology, society and the environment
- **Literacy:**
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- **Competency:**
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Education Objectives and Program

Project Based Learning

- Business solution for themes come from company
 - Real-life problems
 - Students should submit results
- Foster
 - Teamwork
 - Project management
 - Cooperating, integrating different fields
 - Training needs-oriented R&D approach

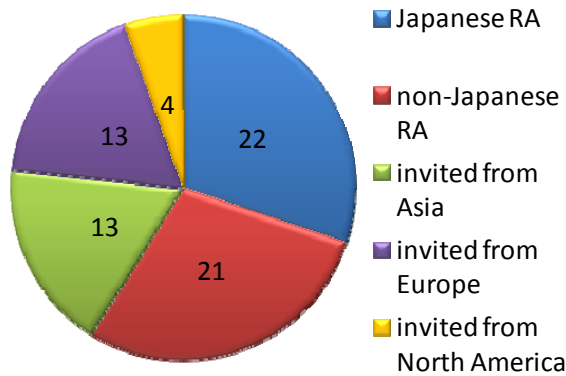


No.	2009 Theme	Propose/Cooperate
1	Feasibility Study for Zero-Emission in Urban Space	Hitachi Ltd.
2	Application of Energy-harvest System for Wireless Sensor	Shinkawa Technology
3	Design Guide Proposal for New Drive Actuator utilizing MEMS technology	Toshiba Corp.
4	Application of Micro Nano Technology for Rapid-Transit Rail Cars	East Japan Railway Company
5	Practical Use of Recycling System of Underwater Demolition	Nippon Koki Co. Ltd.
6	Customer Service Innovation for Industrial Machinery	Ebara Corp.
7	Service Design Based on Customer Satisfaction	NEC Corp.

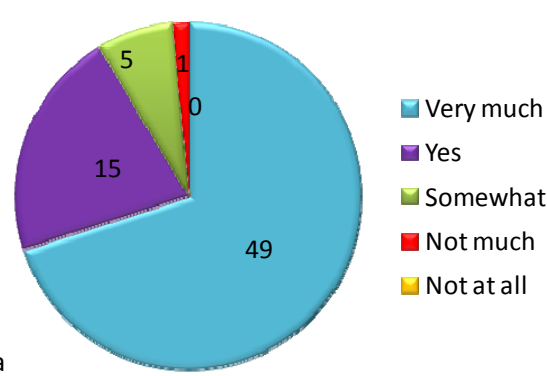


Summer Camp

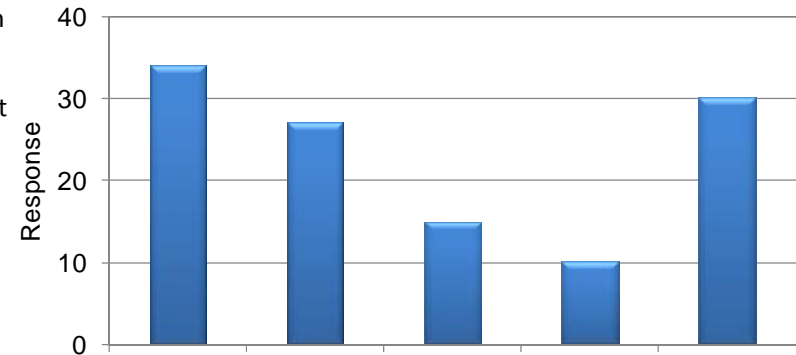
- 73 Ph.D students from 17 world-leading universities of 12 countries
- Research Presentation and Discussion for a novel idea (Group work)



▲ Participants



▲ Enjoy camp



▲ Which areas beneficial

Day	Time	Activity
Wed. Jul 28	Breakfast	Arrival & registration
Thurs. Jul 29	Breakfast	1st Team Meeting
		Meetings
Fri. Jul 30	Breakfast	Meetings
		Final presentations (15min x 5)
Sat. Jul 31	check-out	Lecture (15min x 5)

International education environment (Overseas bases)



Small Group Specialized Field Discussion

■ Mar. 8-13, 2009 Mar. 8, 2009

Theme: Medical robotics

Sant'Anna School of Advanced Studies (SSSA), Italy

Technical University of Munich (TUM), Germany

■ Mar. 23-27, 2009

Theme: Leading-edge nanotech

Columbia University, MIT, USA

■ Mar. 9- 13, 2010

Theme: Nanoscale thermal and energy phenomena

Stanford University, UC Berkeley, USA

■ Mar. 15-20, 2010

Theme: Computer Integrated Surgery

Johns Hopkins, Harvard, USA

■ Feb. 14-19, 2011

Theme: Micro-scale Multiphase Flow Heat Transfer

EPFL, Switzerland, TU Darmstadt, Germany

■ March 7-11, 2011

Theme: Synthesis and Modelling of Nanoscale Materials

University of Helsinki, Aalto University, Finland

University of Cambridge, UK

■ March. 24-30, 2011

Theme: Biomicro/nanofluidics

ETH, Switzerland, KTH, Sweden



SSSA



TUM



Columbia



MIT



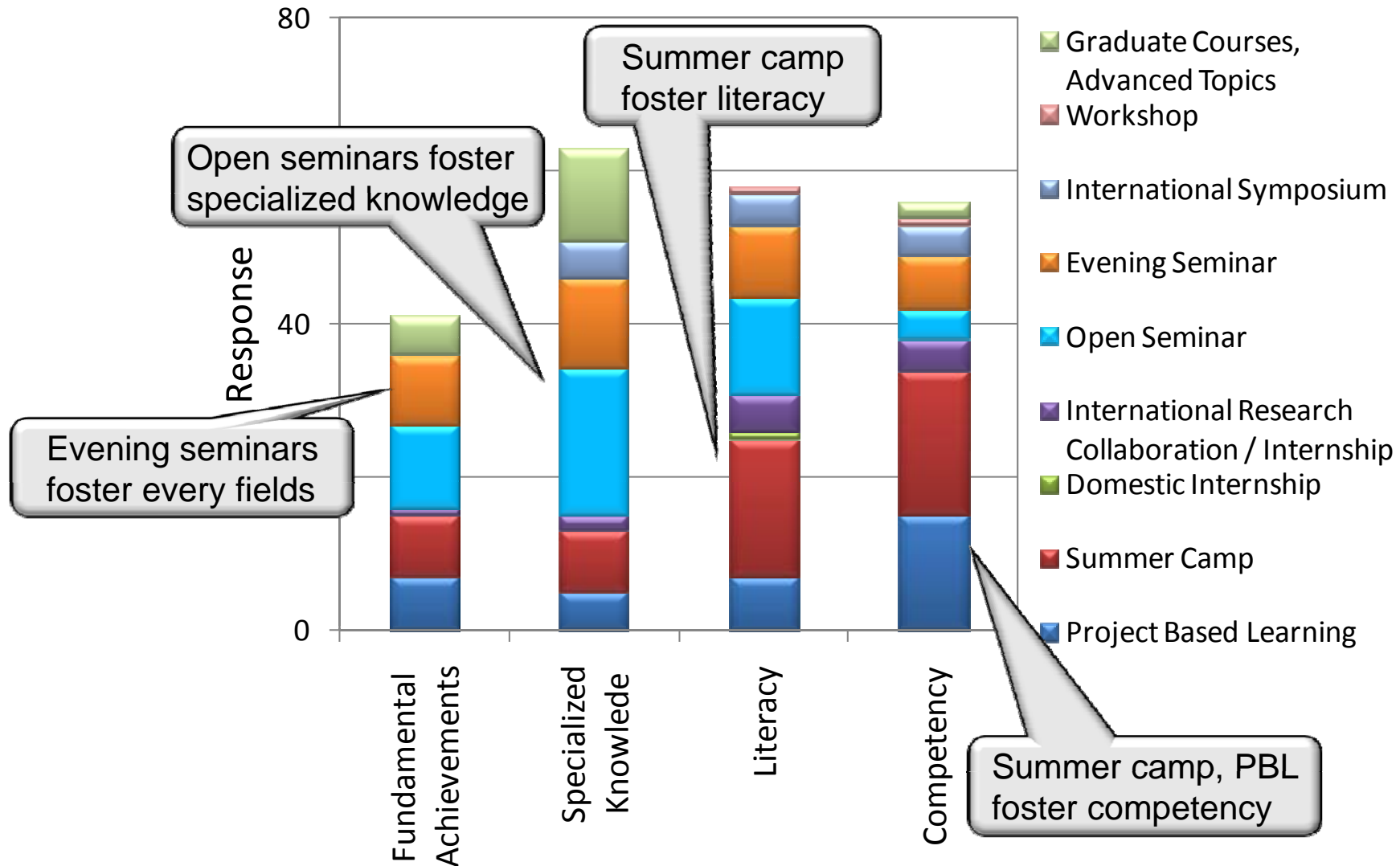
Stanford



Harvard

Voice of Students

Benefit Education Program



Faculty vs. Students

Education Objectives and Program

