



HOKKAIDO UNIVERSITY

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Workshop 2010

Preparing Future Faculty: An Introduction to Teaching and Writing for Graduate Students (July 21-27, 2010)

Session 12. Symposium: A Roadmap to International Career Development (July 26, 2010)

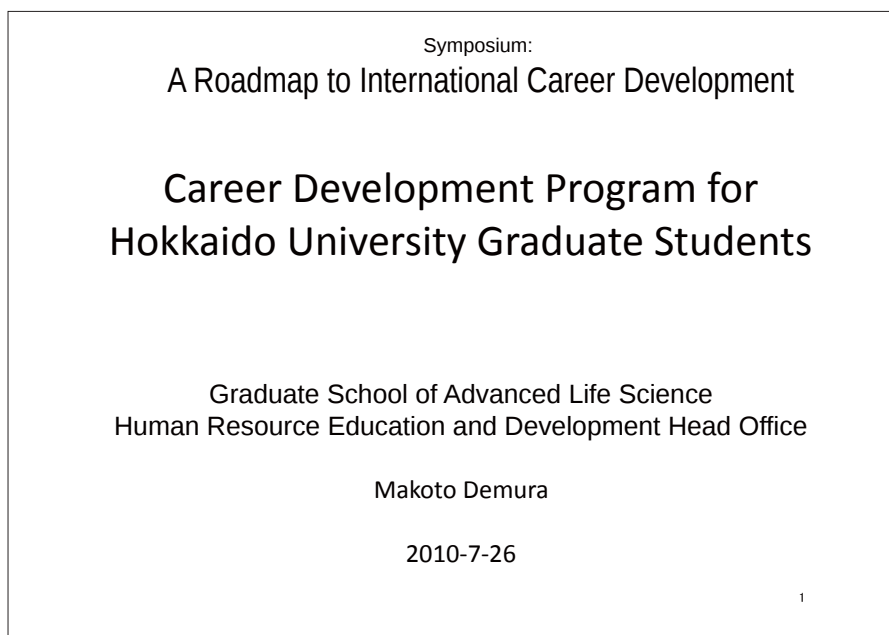
Panelist : Makoto Demura

Career Development Program for Hokkaido University Graduate Students

Makoto Demura*

Graduate School of Advanced Life Science; Human Resource Education and Development Head Office

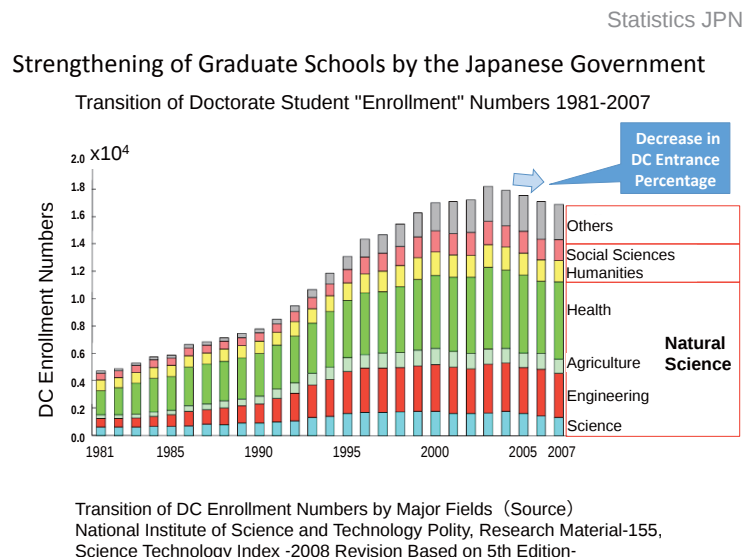
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1) Here I will introduce our activities at the Human Resource Education and Development Head Office with particular focus on our career development program for Hokkaido University graduate students.

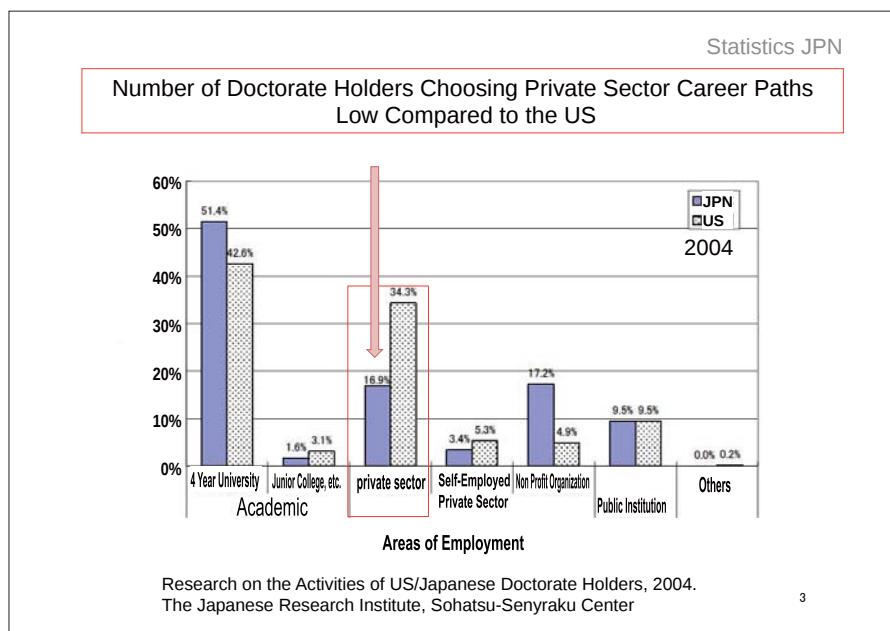
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2) Due to government policies in the 1990s aimed at strengthening graduate schools, the number of students enrolling in DC programs in Japan increased roughly twofold by the year 2000. At the same time, the Japanese government attempted to construct a new research and development system by promoting the "Ten Thousand Post-Doctorate Plan" underwritten by the "Science and Technology Basic Plan."

However, as the graph shows, the DC student enrollment peaked in the year 2003 and from there shifted to a slight decrease. Various reasons for this phenomenon, such as the decrease in childbirth, have been suggested. The decrease in DC enrollment has also been attributed to the uncertainty of career paths for postdoctoral researchers.

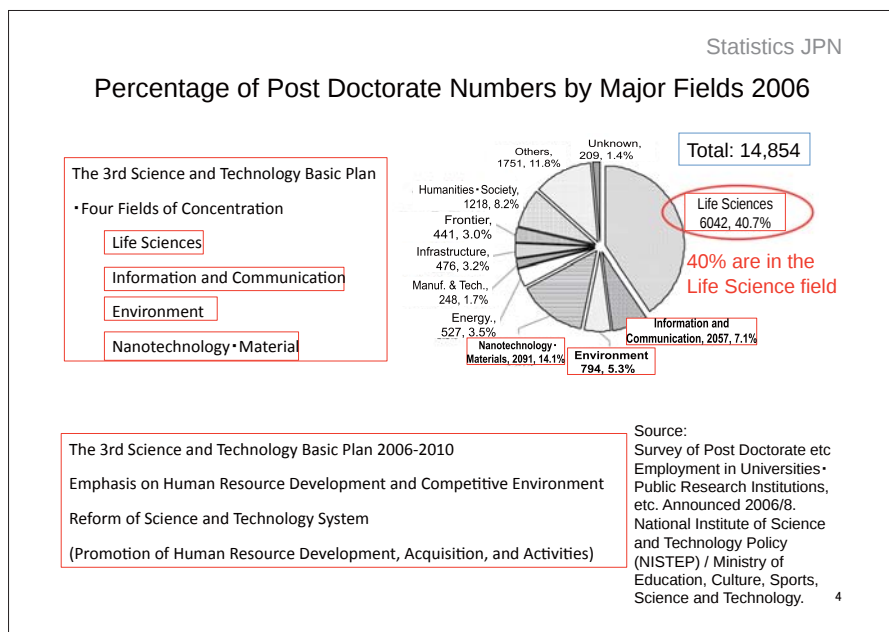


3) Investigations in the past have produced data suggesting significant differences between Japanese and US doctorate holders in terms of career choice tendencies.

As the graph above shows, the number of Japanese doctorate degree holders who take private companies into

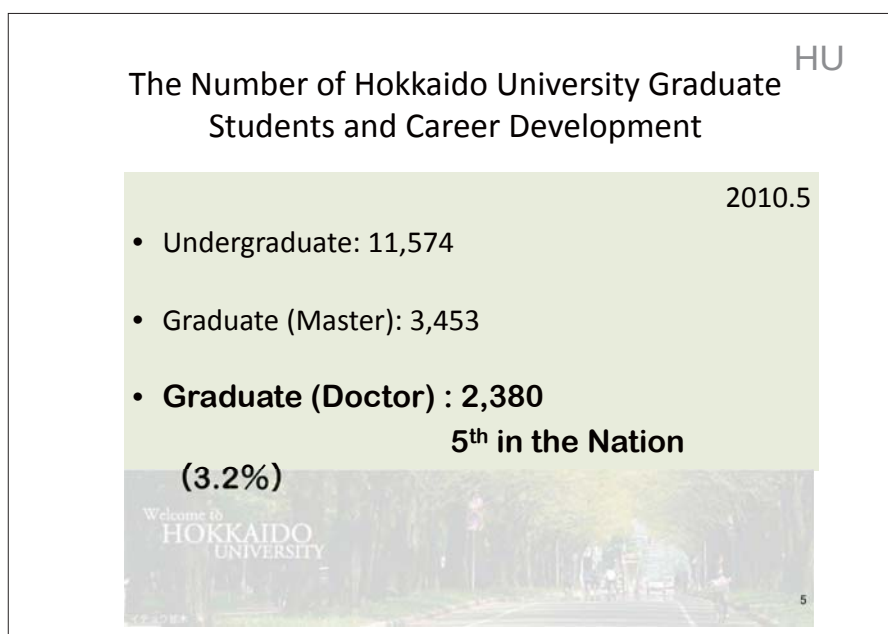
consideration as a career choice is approximately half that of their American counterparts.

The current situation implies the need for Japanese universities to educate students on career path possibilities during graduate school.



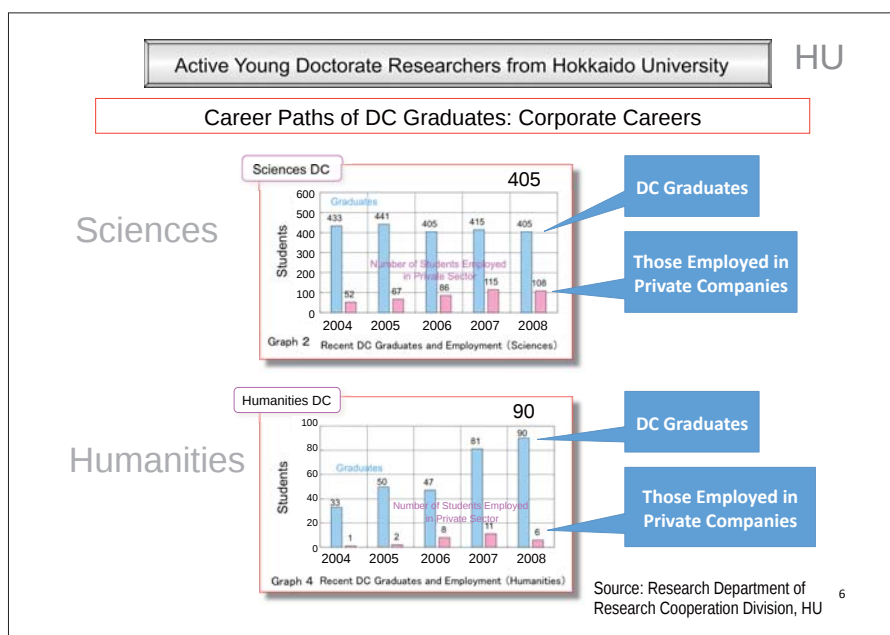
4) According to surveys looking at post doctoral researchers by their fields, roughly 65% of them are in the four fields on which the Science and Technology Basic Plan places particular emphasis: life science, information and communication, environment and nanotechnology/materials. Furthermore, an astonishing 40% of the researchers are in the life science field.

Graduate students and postdoctorates are young researchers supporting the science technology of Japan. Therefore we must place particular emphasis on creating an educational environment for human resource development. Furthermore, we must work quickly to achieve structural reform aimed towards the development, acquisition, and activities of such resources.



5) Next, I will consider the case of Hokkaido University. The total numbers of students this year are: undergraduate, 11,574; graduate (masters), 3,543; and graduate (doctoral):

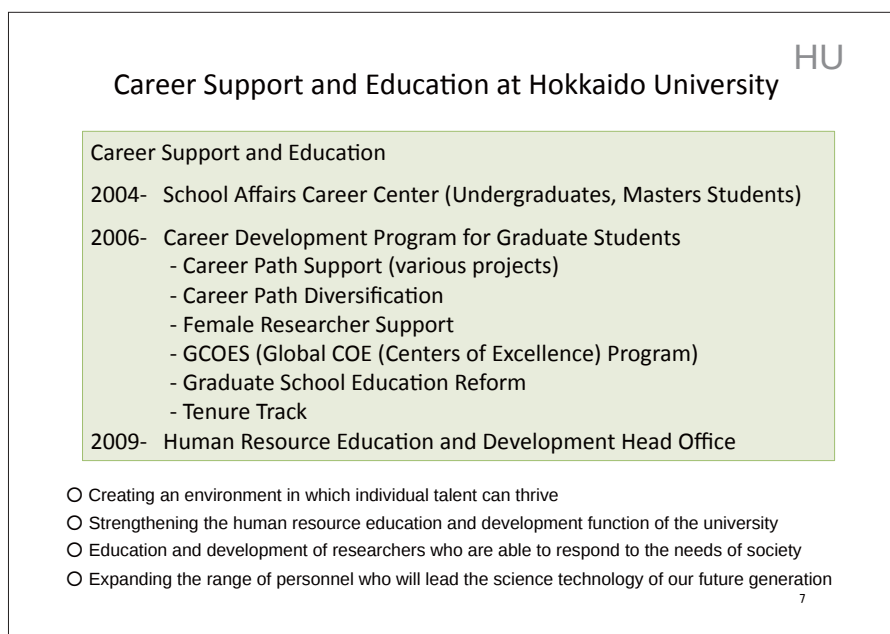
2380. The total number of doctoral course students is the fifth highest in the nation.



6) The number of DC graduates from Hokkaido University for the past five years has fluctuated in the manner shown in the blue box. The number of graduates in science-related fields is roughly five times of that of those in the humanities.

The percentage of DC graduates in science-related

fields moving on to private companies is low. This percentage mirrors that of the national statistics. However, from the year 2006, when we began our student support projects such as the Career Path Diversification Promotion Program and Awareness Reform, the number of graduates finding work in the private sector has increased.



7) As shown above, from the year 2006, together with the support operations at the career center, Hokkaido University launched a series of projects aimed at developing career paths for graduate students. Then, in the year 2009, with the purpose of promoting and further developing these projects, the Human Resource

Development and Education Head Office was founded as a university-wide administrative base. This office provides comprehensive support for young researchers who are expected to lead the science technology of the next generation.

Hokkaido University Human Resource Development and Education Head Office

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From 2009/04 -

Hokkaido University will continue to improve the young scholar development and education program and provide comprehensive support to young researchers who will become the leaders of future science technology.

- Human Resource Development through society/university collaboration
Career Education for Doctorate Students
- Establishment and administration of a hub organization for a university wide human resource development project
Career Design for Post Doctorates
(Post Doctorate Researchers, Hokkaido University Alumni)
- Establishing an environment where female researchers are actively employed and can fully express their capacities
Female Researcher Support Room

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8) There are three main roles and functions of this head office. The first project is Human Resource Development through Society/University Collaboration. The aim here is to provide career education and support for doctoral students.

The second project is the establishment and administration of a hub organization for a university-wide human resources development project, that is, the

Career Design for Postdoctorates aimed at postdoctoral researchers and Hokkaido University alumni.

The third project is to establish an environment in which female researchers are actively employed and can fully express their capacities. Actual activities are managed chiefly by the Support Office for Female Researcher Support Room.

Human Resource Development Through Society/University Collaboration

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- (1) To provide career design education with the aim of helping students fully express their specialized skills in society.
- (2) To structure a network of career path related connections which will aid in students finding a suitable position in society.

•S-cubic Project 2006-



S-cubic: Superior Skill Station (S³)

•HoP-Station Project 2009-



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9) For "The Development of a Society-Oriented Perspective through Society/University Collaboration," we administer two projects: S-cubic and Hop-Station. Through these projects we aim to (1) provide career design education that will aid in students fully expressing

their specialized skills in society, and (2) structure a network of career-path-related connections that will aid students in finding a suitable position in society. Next we will look at various projects that we conduct.


Course of Science Administration: COSA



Advanced COSA: Science Business Management Course for Scientists

- Providing Graduate School Common Courses (2008~)
"Step-up Career Development for Science・Technology Field Graduate Students (I)(II)"
 - Educational Goals
 - To deepen the understanding of current corporate research, and to recognize the significance of basic science in society.
 - To recognize the diversity of possible career paths for young researchers, and by doing so to expand their future outlook.
 - Lecturers
 - Corporate employees with top level research experience (Head of research institutes, etc.), Alumni
 - Appealing aspects of corporate research, research management
 - Examples of active doctorate holders in corporate environment
 - Introduce methods of basic research etc., to students
 - Students: MC, DC, PD
 - ▶ Graduate Schools in the Science/Mathematics Field : Graduate School of Science, Life Science, Engineering, Agriculture, Veterinary Medicine, Health Science, Environmental Science, Medicine, etc.
 - ▶ Graduate Schools in the Humanities: Graduate School of Education

Courses Open Twice a Year



~150 students/course



Lectures, Work-shop style discussion

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10) First is a graduate school common course we began offering from the 2008 "Step-up Career Development for Science/Technology Field Graduate Students." The educational goals for the course are to deepen the understanding of current corporate research, and to recognize the significance of basic science in society as well as to recognize the diversity of possible career paths for young researchers, and by doing so to expand their future outlook.

In this course we invite as lecturers people with top level corporate research experience (heads of research institutes, etc.) and doctoral course alumni. They lecture on the appealing aspects of corporate research and research management and provide examples of active doctorate holders in a corporate environment. In addition, they will introduce methods of basic research, etc., conducted at their company. We have had students from a variety of graduate schools attend this course.


Red String Society



The society provides opportunity for young researchers (DC, PD) to have face to face interactions with corporate personnel.

Site: Tokyo, Sapporo
Total Number of Researcher Attendance: 230 (2006-2008)

Day 1 1) Lecture ▶ Brief speech from participating private corporations • Characteristics of private corporations • Expectations and requests for PD, DC • Successful examples of DCs, etc. 2) Poster Presentations by Young Researchers ▶ Self-PR by Young Researchers ▶ Discussion with corporate personnel. 3) Information Exchange Party Day 2 4) Tour of Research Institute (upon request)	Hokkaido Uni. DC Graduate School of Science Graduate School of Life Science Graduate School of Agriculture Graduate School of Medicine Graduate School of Veterinary Medicine Graduate School of Engineering Graduate School of Information Science Hokkaido Uni. PD Research Institute of Science Graduate School of Frontier Sciences Graduate School of Earth Science Research Institute of Information Science Creative Research Institute Etc. Joint Research institution National Institute of Advanced Industrial Science and Technology (Kansai, Tsukuba)
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▶ Speech from corporate personnel



▶ PR by Young Researchers



▶ Discussions with corporate representative

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11) "The Red String Society" provides opportunities for young researchers (DC, PD) to have face-to-face interactions with corporate personnel. The activities of the society are planned and managed by the Human Resource Education and Development Head Office. The society arranges for corporate lecturers to give speeches about the specialties of their companies and about their expectations

for DC and PD students, as well as helping young researchers promote their skills and knowledge through poster presentations. In addition, it provides opportunities for discussions and exchanges of information between students and companies as well as research institute tours (upon request).

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Employment of Female Researchers and the Establishment of a Working Environment in which Female Researchers can Fully Express their Talent

(1) Providing support for female researchers who wish to pursue both child birth/rearing and research.

(2) Establishing a mentoring system and a network of communication between female researchers.

(3) Increasing the number of female researchers.



•Support Office for Female Researcher

Training Female Researchers



女性研究者育成システム改革推進北海道大学F3プロジェクト

Female Researcher Development Acceleration of System Reform Hokkaido University F3 Project

Future Scientist Training Course



Hokkaido University "Future Scientist Training Course"
Environmental Science from Hokkaido to the World and the Future From Molecules to the Field

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12) The Support Office for Female Researchers provides support for the employment of female researchers and the establishment of a working environment in which the researchers may fully utilize their talents.

It does this by (1) providing support for female

researchers who wish to pursue both childbirth and research, (2) establishing a mentoring system and a network of communication between female researchers, and (3) increasing the number of female researchers.

HU

Management of an Organization as the Base for a University Wide Human Resource Education and Development Project

(1) Collecting human resource (students, researchers, private companies, etc) information and the analysis of problems.

Establishing links between private companies and young researchers; acting as the window office for young researchers seeking jobs; managing information concerning job offers from private companies.

(2) Conducting programs aimed at reforming the mind set of young researchers and persons/parties concerned

Career paths for young researchers and faculty, research on views towards human resource development and education.

career education, long-term internships

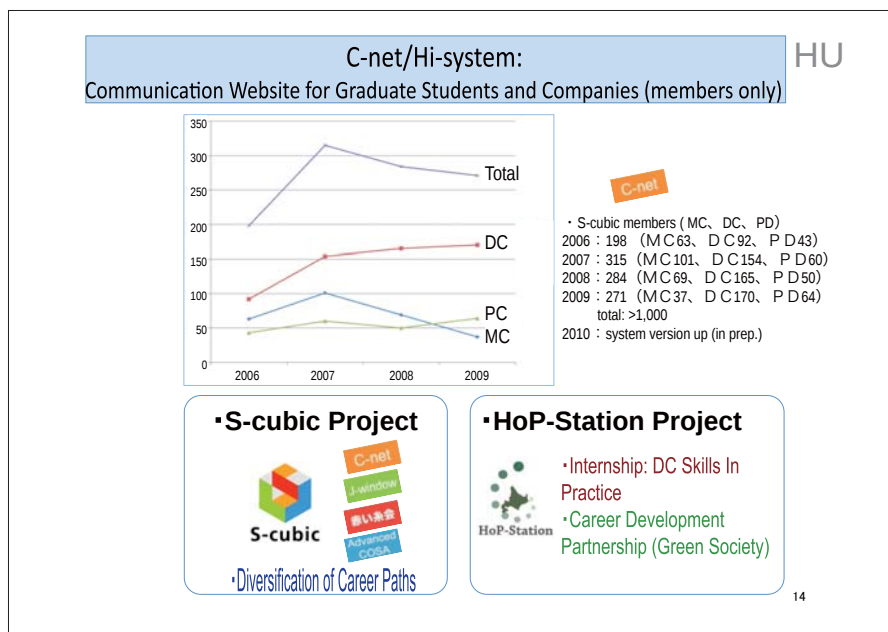
(3) Providing support for obtaining external funding projects aimed at enhancing human resource development enterprises



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13) The Human Resource Education and Development Head Office is the base organization for our university-wide human resource education and development project. The main functions of the office are creating a membership website aimed at collecting human resource (students, researchers, private companies, etc.) information and analyzing existing problems. As part

of a program aimed at reforming the mindset of young researchers and persons/parties concerned, we conduct, for example, surveys and long-term internships. The office also provides support for obtaining external funding projects aimed at enhancing human resource development enterprises.



14) Students have access to the C-net/Hi-system, a membership-based website created to function as a portal of communication between graduate students and private companies. We are currently in the process of establishing an environment in which students have access to various websites with useful information on career path development. From the time we opened the website in the year 2006, the number of members has grown to more

than 1000. We are now reassessing the system for further improvement.

Furthermore, the HoP-Station project provides DC students with opportunities to experience internships in private corporations in and outside of Japan. Through these internships, DC students can develop their skills in specialized fields by experiencing the actual labor environment.

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University Wide Reform of Human Resource Development and Education for Young Scholars

Hokkaido University Human Resource Development and Education Symposium
"SynFOSTER 2009-2010"
"The Development of Young Researchers Leading to University Education Reform
- Co-operating with Society-"

■ Program

- ◆ On Graduate School Reform (Ministry of Education, Culture, Sports, Science and Technology)
- ◆ Educating Young Researchers as the Future Driving Force of Corporate Growth (Teijin CO.)
- ◆ Educating Young Researchers (Human Resource Education and Development Head Office)
- ◆ Towards an Attractive University Education・Graduate School Education Reform Program (Poster Presentation 31 Projects)
- ◆ Independent Projects by Graduate Schools and the Career Center

•Base for developing and educating personnel who possess the proper insight and comprehensive judgment skills crucial to utilizing their knowledge in specialized fields.

•Developing fundamental skills for responding accurately to the needs of society.

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15) At the Human Resource Education and Development Head Office, we hold yearly symposia introducing our university-wide human resource development program and our projects concerning career education. In these symposia, students, faculty members, the university, private sector and government join in an interdisciplinary

discussion on how the career development program for graduate students can be improved. In the future, we feel it is important to expand our career development program to international students and graduate students in the humanities.

Hokkaido University **HU**
「Human Resource Education and Development Head Office」

Hokkaido University will continue to improve our young scholar development and education program, and will provide comprehensive support to young researchers who are the leaders of our future science technology.

Human Resource Education and Development Head Office
(Admin. Bureau, New Bldg. 4th Floor)

•S-cubic Project



S-cubic

<http://www.sci.hokudai.ac.jp/s-cubic/>

•HoP-Station Project



HoP-Station

<http://www.synfoster.hokudai.ac.jp/hop-station/>

•Female Researcher Support Room



FResHU

<http://freshu.ist.hokudai.ac.jp/>

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16) In summary, with the Human Resource Development and Education Head Office as its base, Hokkaido University will provide comprehensive support to young researchers who are the leaders of the next generation of

science technology. Finally, the focus of our program's visions and activities is now expanding from science students to every graduate student in Hokkaido University.