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Academic Mobility Research

Learn by Doing: Expanding International Internships/Work Abroad Opportunities for U.S. STEM Students

Debbie G. Donohue and Sabeen Altaf

May 2012

A Briefing Paper from IIE's Center for Academic Mobility Research

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ABOUT THE AUTHORS

Debbie G. Donohue has been working with students, businesses, and universities around the world to create and enhance international internship programs for over ten years. She is the founder and president of Global Career Pathways, a consulting company that assists employers, universities, and organizations worldwide in developing a global workforce that can meet today's challenges through university global recruiting programs. Before starting Global Career Pathways, Donohue created the Georgia Tech Work Abroad Program in 2005. Within five years, Donohue grew the program and sent Georgia Tech students on over 250 global work terms in 31 countries. Before working for Georgia Tech, Donohue worked for an international nonprofit (IAESTE) in sending students from the top 25 technical universities overseas for work experience.

Sabeen Altaf is the program officer for science and technology programs at the Institute of International Education (IIE). She manages the Whitaker International Fellows and Scholars Program, which sends emerging U.S.-based biomedical engineers abroad to study and/or undertake a self-designed research project. She also manages the Global Engineering Education Exchange (Global E3) Program, a leading international consortium for undergraduate engineering exchange. Altaf has worked in the nonprofit sector since 2002, focusing on education and international development, in organizations such as the Aga Khan Foundation and the Arab American Institute, where she oversaw international youth and scholarship programs. In 2009, Altaf moved to New York City, working first for the Structured Employment Economic Development Corporation (Seedco) as a development consultant responsible for generating foundation and corporate support for Seedco's Economic Recovery Initiative, before then joining the Institute of International Education.

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Introduction: The Need for Work Abroad Programs for STEM Students

Technological innovation is a driving force in every national economy worldwide, including the United States. The U.S. economy requires innovative programs to educate, develop, and train the next generation of globally competent scientists and engineers. Recent studies have identified a pressing need for a U.S. workforce that is more globally aware, more competent in foreign languages and intercultural skills, and more familiar with international business norms and behaviors. In the STEM fields (science, technology, engineering, and mathematics), however, few academic programs provide adequate training and educational preparation in these areas. According to the 2011 IIE *Open Doors Report on International Educational Exchange,* 3.9 percent of U.S. students who received credit for study or work abroad were engineers, while math and computer science students made up only 1.5 percent of U.S. students studying abroad. These two majors represented the smallest share of U.S. students abroad, other than those majoring in agriculture. While close to 10 percent of U.S. undergraduates study abroad before graduation, less than 4 percent of engineering students participate in study abroad programs; as a result, very few are gaining the global education they will need to be competitive professionals in the global workforce.

U.S. and multinational companies are expressing concern over the shortage of engineers and scientists with the global skill set necessary for today's workforce. IBM's *Working Beyond Borders* report, a study based on conversations with over 700 Chief Human Resource Officers worldwide, found three major deficiencies in today's global workforce:

- Cultivating creative leaders
- Mobilizing for greater speed and flexibility
- Capitalizing on collective intelligence

The report states: "Finding people with the skills to compete in an increasingly borderless marketplace and sustain innovation is difficult enough. Managing people from different cultures, across different locations and time zones, is, arguably, even harder" (*Working Beyond Borders: Insights from the Global Chief Human Resource Office Study*, 2010). Other reports such as the 2011 *QS Global Employer Survey* and the 2011 McKinsey report, *An Economy That Works: Job Creation and America's Future,* also illustrate the need for STEM work abroad programs. (See the list of other studies in Appendix A.)

The need for globally minded and competent STEM professionals is timely and pertinent. International internships and work abroad programs provide a means for addressing this need that meets the education and curriculum demands placed on our technical students. Yet few higher education institutions have established such programs or have strong mechanisms for integrating them into the STEM curriculum. To help address this need, a coalition of education abroad professionals at the Institute of International Education (IIE), the NAFSA: Association for International Educators' Work, Internship, and Volunteer Abroad (WIVA) Subcommittee, and

the University of California, San Diego, organized a one-and-a-half-day workshop targeted to STEM faculty and staff, career services professionals, and education abroad professionals. Convened at IIE's Washington, DC offices, the workshop was oversubscribed, with over 60 participants from across the United States and Canada signing up during early registration, attesting to the widespread interest in this topic. The workshop addressed internship and work abroad programs in the STEM fields, specifically creating, maintaining, funding, and assessing these programs. (See the conference agenda in Appendix B.) In addition, the workshop provided a venue for networking between existing and nascent efforts, with a focus on programs in engineering.

Defining Work Abroad: The Many Faces of Work Abroad Programs

The workshop included a diverse group of professionals from higher education institutions across the United States and Canada who had various knowledge and experience levels and goals for the conference. (See the participant list in Appendix C.) The first activity consisted of defining some basic terms in order to make the conversation more clear and focused.

"Work abroad" is a broad term that describes an immersive experience in an international work environment where the primary purpose is educational, whether for academic credit or not.[1] By design, work abroad programs are temporary, lasting anywhere from a few weeks to two or three years, and they may or may not be related to specific career goals (Nolting, Johnson, & Matherly, 2005). The key is that they are out-of-classroom experiences that are immersive and experiential.

Beyond this umbrella definition, it is important at times to better define the various types of work abroad experiences. These typically include research internships, corporate internships, and internships for credit. STEM fields tend to lean toward corporate and research internships, though there are some study internships as well. Often, the challenges and needs are different for corporate and research internships; therefore, it became important to discuss different types of work abroad programs.[2]

Existing Program Models: Innovative Programming

At the workshop, the University of California, San Diego; Purdue University; the University of Rhode Island; and the Georgia Institute of Technology (Georgia Tech) reported on their work abroad program designs, challenges, and benefits. (See Appendix D for a program reference list.) All four programs include more than just an internship, such as robust pre- and post-programming, and some also include additional coursework and award credit toward a degree

[1] This discussion is further clouded when looked at across institutions, some of which refer to any credit-bearing experience as "study" abroad. We emphasize that throughout this paper we look at the experience from perspective of what environment the student is immersed in.
[2] A future study might look at work abroad by sectors of the economy in which the student is immersed, e.g. industry, academic/research, government, nonprofit/nongovernment. This would expand the preliminary study conducted by IIE, which is included as Appendix F.

in engineering and other fields. Many reported that their programs were small, elite, high-impact, and administratively intensive. All noted the same benefits of these programs:

- Increase the number of women in engineering fields
- Cause a trickledown effect, helping send more STEM students on education abroad experiences
- Prove that degree integration is possible in STEM fields
- Increase foreign language enrollment

For example, the International Plan (IP) at Georgia Tech is an undergraduate degree program that was created as part of Georgia Tech's Quality Enhancement Plan (QEP). Students in this program must spend a minimum of six months abroad. Due to Georgia Tech's co-op culture and history, higher administration thought that it was important to create a formalized Work Abroad program so that students in the IP could study, work, and/or research abroad to obtain their needed six months abroad. As a result, the Georgia Tech Work Abroad program was created in 2005 along with the International Plan. The Work Abroad program is a robust program that sent more than 200 undergraduate and graduate students abroad in 2010-2011, while the International Plan is only for undergraduates. While the number of International Plan students that graduate each year from Georgia Tech is not a large number, the Work Abroad program that it helped create is currently sending more than 150 Tech STEM students abroad each year. Other universities noted this same phenomenon, where a small elite program created a trickledown effect that resulted in a larger percentage of students going abroad.

As more higher education institutions begin to think about the best ways to develop a program on their campus, they should consider how successful programs were initiated at other universities. Some were started by entrepreneurial faculty members who had to lobby higher administration for years before getting resources. Key elements of the programs at these four institutions are that they are entrepreneurial, labor-intensive, and high-impact. They also caused a ripple-effect for global programming on campus while increasing the number of students graduating with an international experience.[3]

How to Effectively Communicate the Benefits of Work Abroad Programs to Faculty and Higher Administration

Later in the workshop, a working group brainstormed the most effective ways to communicate the benefits of work abroad programs to faculty and higher administration. The group determined that the two key elements are:

[3] John Grandin gives lessons learned about starting international engineering programs in Chapter 15, *Bridging Two Worlds*, in *What is Global Engineering Education For?: The Making of International and Global Engineering Educators,* 2010.

1. Identify strong supporters on campus
2. Create ongoing dialogue

The group determined that the strongest supporters of work abroad programs tend to be faculty who lead education abroad programs and aim to provide students with a better education, as well as faculty and administrators who recognize the need and opportunities for international engagement on their campus. In addition, work abroad programs can assist the mission and efforts of the alumni offices, the vice provost for international initiatives, development officers, and student recruitment efforts; as such, it is possible to find key stakeholders in these offices around campus as well.

Creating a dialogue with STEM faculty and campus leadership was also determined to be important. For example, students should be given the opportunity to offer feedback to faculty and deans. One particular approach entails creating a survey that asks students about the types of international experiences they would like to have available, and then scheduling a meeting with the dean of engineering to report the survey results.

Other suggestions included informing higher administration of resource needs and standards in the field; benchmarking with peer institutions; and discussing the risk issues of students going abroad on WIVA programs that are not formalized programs on campus. Informing higher administration of work abroad programs at your peer institutions can also be helpful. A final example involved informing higher administration about risk and liability issues, which is important in particular for universities that do not have an office that officially serves work abroad students. Again, beginning a dialogue with administrators about the values and needs of work abroad programs is a reasonable early step in promoting the adoption of work abroad programs.

How to Effectively Communicate the Benefits of Work Abroad Programs to Employers

Molly Teas, Senior Advisor for Education at the U.S. Department of State, kicked off this brainstorming session by presenting on the Passport to India initiative. Passport to India seeks to dramatically increase the number of American students with firsthand experience in India by increasing the number of internship and study abroad opportunities. Passport to India is focused on creating an immersive experience in India through business internships, research internships, and service-learning internships that match students' majors.

After the presentation, the working group discussed benefits for employers, which include:

- Globalize and diversify their workforce
- Develop integrated partnerships with universities (co-ops, internships, full-time employment) that address research needs, outreach, and engagement. In other words, create a comprehensive recruiting and research strategy with the company that addresses their recruitment needs (both interns and full-time hires) while including research and any other strategic needs of the company.
- Develop branding opportunities around campus and name recognition among students through campus sponsorships
- Advertise products among the future engineering workforce
- Recruit future employees for overseas locations/operations

The working group also discussed best practices for working with host employers, including:

- Universities need to take care of visa formalities. Visa applications should not be the burden of employers. Solutions may include:
    - Use university visa offices
    - Use external provider of visa services
- Employers should employ co-ops/interns at the same work conditions (salary, benefits, work environments) as students from universities in the host country. Otherwise, they create a two-tier work environment.
- Ideally, U.S. co-ops and interns should be placed in overseas divisions/work environments in which the division leader or supervisor has had international study or work experience.
- Furthermore, it is beneficial if U.S. co-ops and interns can be placed together with co-ops or interns from the host country in the same work environment.
- Make use of the alumni network to create opportunities for your students. Many universities have alumni around the world. In many cases, this is an untapped resource.

Funding for Work Abroad Programs

Work abroad programs are labor-intensive and require varying levels of financial and human resources, depending on the type of program an organization wants to create. There is no set formula for how to fund a program, but there are a variety of ways that are more common. In general, work abroad programs at universities can be divided into five main categories:

- University support
- Employer fee/support
- Government support

- Individual support
- Nongovernment and foundation support

The National Science Foundation, the Department of Education, and IIE reported on funding opportunities that are currently available and possibly forthcoming for work abroad students and programs. There are international internship programs funded by private foundations, such as the Whitaker Foundation, as well as federally funded scholarships for study and work abroad, such as Gilman International Scholarships and Boren Scholarships and Fellowships. The Global Engineering Education Exchange (GlobalE3) consortium was also presented as a cost-effective model through which U.S. universities could send their engineering students to a dozen other countries for study and internship opportunities on a tuition-swap basis, while avoiding the administrative burden and costs of managing a dozen separate bilateral relationships.

In addition, the University of Wisconsin reported on their unique funding model. The University of Wisconsin, Madison's International Internship Program grew out of the Madison Initiative for Undergraduates, which ensures that UW-Madison students receive critical services and helps increase the amount of need-based financial aid available. The International Internship Program enhances student learning during their semester spent working abroad by offering them three-hour courses for academic credit. In addition, the University of Wisconsin mentioned the benefits of using providers to help reach their goals of placing large numbers of students into work abroad programs.

Assessing Work Abroad Programs

The Executive Director of ABET set the stage for this panel discussion, stating that international programs in the STEM fields are about finding good leadership. He noted that it is possible to have enough flexibility for a study or work abroad experience in an engineering curriculum. The challenge is to find the right leader on campus to make that happen. Afterward, there were three case studies given. Two of the programs used the Intercultural Development Inventory (IDI) to assess the cross-cultural learning of their students. All of the universities had comprehensive assessment plans and interesting results.

Overall, the panelists suggested that work abroad programs should partner with the Office of Assessment or whoever is charged with basic university assessment activities. A few suggestions included starting with concrete, measurable goals for programs; using multiple assessment tools where possible; and involving the larger campus community for assessment purposes.

Additional Discussions Topics

The workshop ended in four small group breakout sessions on:

- National needs within the work abroad community
- How to start an international internship program
- How to increase STEM education abroad activities
- Benchmarking for work abroad programs

The workgroup on national needs for the work abroad community assessed a variety of needs for the community, which include:

- Pre-departure resources and a possible toolkit
- Reentry programming to help students reflect and assist with the reentry process and learning
- A standards document, which a Forum for Education Abroad committee is in the process of creating
- A statement of importance of STEM programs from national organizations such as IIE, ABET, and the American Society for Engineering Education (ASEE)
- Training and online forums for best practices
- Vital data collection

The output of this group includes soliciting statements of importance about work abroad programs from IIE, ABET, and ASEE. In addition, IIE is adding a question to the *Open Doors* Survey about non-credit-bearing internships to stimulate better data collection by campuses, and to share the results with the field. Even though there are still a variety of needs, these outputs were seen as a promising beginning.

The benchmarking working group came up with a long list of questions for a survey to disseminate this summer. This survey will put together data on existing work abroad programs to assist with the benchmarking processes. Sample questions and measures could include: number of full-time staff, number of students going abroad (undergraduates vs. graduates), funding sources, credit-bearing vs. non-credit-bearing programs. (See Appendix E for list of benchmarking questions.) The group also noted the importance of distinguishing between "assessment" and "data collection," and suggested that there be a way to track students after they return from their experiences abroad.

The group that focused on how to start a work abroad program was challenged by not having anyone present who had this type of knowledge. This group created a list of questions they had collected in regard to starting an internship program. The outcome of this working group is that it will be important to offer trainings and workshops for organizations that want to learn about how to create a program.

Lastly, the education abroad group focused on ideas to send more students abroad, which include:

- Informing stakeholders about opportunities abroad
- Risk management
- Changing the mindset that students must graduate in four years
- Educating freshmen about opportunities
- Engaging faculty about available opportunities, especially foreign-born faculty
- Marketing to and advising STEM students
- Understanding what STEM students need and are looking for
- Encouraging students to share information directly with other students
- Dispelling myths to engineering students about education abroad opportunities

Conclusion

A common thread at this workshop is that all participants and presenters understood the value of and were dedicated to developing effective and sustainable work abroad programs for students in the STEM fields. A challenge is that there is no set formula for creating a successful work abroad program; thus, organizations have to create models that will work for their particular institution, especially given the variety of work abroad programs. This workshop offered essential information and many successful examples, and underscored the need for additional resources. There is more to be learned about best practices in preparing students for work abroad programs and assessing the impact of their experiences. Many institutions already have strong pre-departure and post-return programs for study abroad students, which can readily be adapted for work abroad students.

There were two major needs identified by this workshop: program creation and furthering program development at universities; and communicating the value of work abroad programs in the STEM fields to higher level administration. These can be addressed in part by a collaborative effort among national organizations such as ABET, ASEE, IIE, and NAFSA to make a statement of importance on increasing internship and work abroad opportunities within STEM programs. Leaders of work abroad programs should also play an important role in assisting others universities in creating new programs.

As previously noted, there is a tremendous need to incorporate substantive international experiences into the educational experiences of STEM field students. In speaking about the value of international experiences, First Lady Michelle Obama stated that "… studying abroad isn't just an important part of a well-rounded educational experience. It's also becoming increasingly important for success in the modern global economy. Getting ahead in today's workplaces isn't just about the skills you bring from the classroom. It's also about the experience you have with the world beyond our borders—with people, and languages, and

cultures that are very different from our own."[4] The same is true for work abroad, which also prepares students to be 21st century global professionals. A final outcome of this workshop is a call for passionate leaders in our greater community to spearhead efforts to create more robust programming, share existing resources, train colleagues, and work together to create more opportunities for students in the STEM fields.

[4] As quoted in "First Lady Michelle Obama Says Study Abroad and '100,000 Strong' Initiative Make America Stronger" (Jan. 19, 2011). http://blog.nafsa.org/2011/01/19/first-lady-michelle-obama-says-study-abroad-and-100000-strong-initiative-make-america-stronger/

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Appendix B: Workshop Agenda

Creating Globally Minded STEM Professionals Through Internships/Work Abroad Programs

Hosted by the
Institute of International Education (IIE)
1400 K St, NW, Washington, DC
April 26-27, 2012

The need for globally minded and competent Science, Technology, Engineering, and Mathematics (STEM) professionals has been documented repeatedly in recent years. International internships and work abroad programs provide a means for addressing this need that meets the education and curriculum demands placed on our technical students. Yet few schools have established such programs or have strong mechanisms for integrating them into the STEM curriculum.

A coalition of education abroad professionals at IIE, NAFSA's Work, Internship and Volunteer Abroad (WIVA) Subcommittee, and the University of California-San Diego offered a one-and-a-half-day workshop targeted to STEM faculty and staff, career services professionals, and education abroad professionals. The workshop addresses internship and work abroad programs in the STEM fields, specifically creating, maintaining, funding, and assessing these programs. In addition, this workshop provides a venue for networking between existing and nascent efforts, with a focus on programs in engineering.

April 26, 2012: Creating Work Abroad Programs

1:30–2:00 pm **Registration and Review of Materials**

2:00–2:30 pm **Welcome and Self-Introductions**

Chair: Peggy Blumenthal, Senior Counselor to the President, IIE

The Need for and Benefits of Internships/Work Abroad Programs
Presenter: Debbie Donohue, Co-chair of NAFSA's Work Internship and Volunteer Abroad (WIVA) Subcommittee and President/Founder of Global Career Pathways

2:30–3:30 pm **Panel Discussion on Existing Successful Models**

Chair: Debbie Donohue, Global Career Pathways
Panelists:

- University of California San Diego, Research Internship Program: Dr. Peter Arzberger, Co-Director of PRIME and Chair, PRAGMA Steering Committee; and Jim Galvin, Director of Opportunities Abroad & Faculty-Led Programs
- Purdue University: Dr. Eckhard Groll, Director of the Office of Professional Practice, Professor of Mechanical Engineering, ACE Fellow
- University of Rhode Island: Dr. Sigrid Berka, Executive Director, International Engineering Program, Director, German and Chinese IEP
- Georgia Institute of Technology: Dr. Jon Gordon, Director of Assessment

3:30–4:30 pm **Concurrent Breakout Sessions**

Session A:
How to Best Communicate the Benefits to Employers and Enlist Them Early on
Chair: Dr. Eckhard Groll, Purdue University
Presenters:

- Dr. Molly Maguire Teas, Senior Advisor for Education, U.S. Department of State's Bureau of South and Central Asian Affairs

Session B:
How to Best Communicate the Benefits to University Faculty/Administration
Chair: Debbie Donohue, Global Career Pathways

4:30–5:30 pm **Reporting Out by Session Chairs and Open Discussion on Best Practices**

5:30–6:30 pm **Networking Reception, followed by no-host dinners at nearby restaurants**

April 27, 2012: Maintaining, Funding and Sustaining Work Abroad Programs

8:00–8:30 am **Continental Breakfast Available in Meeting Room; Informal Networking**

8:30–9:45 am **Panel Discussion on Existing Funding Models for Programs**

Chair: Peggy Blumenthal, IIE

Presenters:

- NSF resources support international STEM internships: Susan Kemnitzer, Deputy Division Director, Engineering Education and Centers
- Nancy Sung, Program Director, East-Asia Pacific, Office of International Science and Engineering
- University of Wisconsin–Madison, International Internship Program: Maj Fischer, Director
- Global Engineering Education Exchange (Global E3), Whitaker Fellowships, and other IIE-managed programs: Dr. Larry Shuman, Chair-Elect of Global E3 and Sabeen Altaf, Manager of STEM Programs at IIE

9:45–10:15 am **Discussion and Q&A**

10:15–10:45 am **Coffee Break**

10:45–Noon **Panel Discussion on Assessing Work Abroad Programs**

Chair: Debbie Donohue, Global Career Pathways

Presenters:

- Best Practices of International Internship Program Assessment: Dr. Michael Milligan, Executive Director, ABET, Inc.
- Case Study of Georgia Tech and the International Plan: Dr. Jon Gordon, Director of Assessment at Georgia Tech
- Case Study by University of Rhode Island: Dr. Sigrid Berka, Executive Director, International Engineering Program, Director, German and Chinese IEP

- Case Study by University of California, San Diego's Research Internship Program: Dr. Peter Arzberger, Co-Director of PRIME and Chair, PRAGMA Steering Committee; and Jim Galvin, Director of Opportunities Abroad & Faculty-Led Programs

Noon–1 pm **Networking Lunch**

1:00–2:00 pm **Working Groups to Discuss Next Steps**

2:00–2:30 pm **Reporting out from Small Groups on Possible Next Steps**
Presenters: Workgroup leaders

2:30–3:00 pm **Wrap-Up and Conclusions**
Peggy Blumenthal, IIE

Appendix C: Workshop Participants

Lisa Abrams, Assistant Professor, Department of Mechanical and Aerospace Engineering, The Ohio State University

Terri Alderfur, Cooperative Education Coordinator, Drexel University

Sabeen Altaf, Program Manager, Science and Technology Programs, Institute of International Education

Peter Arzberger, Chair, PRAGMA Steering Committee, University of California, San Diego

Kimberly Baran, Coordinator, Global Engineering Education, The Pennsylvania State University (Penn State)

Samesha Barnes, University of Florida

Bernhard Beck-Winchatz, Faculty Member, DePaul University

Sigrid Berka, Executive Director, International Engineering Program, University of Rhode Island

Brook Blahnik, Director of Advising, Learning Abroad Center, Global Programs and Strategy Alliance, University of Minnesota

Peggy Blumenthal, Senior Counselor to the President, Institute of International Education

Kerri Boivin, Director, Engineering Career Resource Center, University of Michigan

Susan Braun, Manager, International Programs, Drexel University

Leora Brouman, Assistant Dean, Columbia University

Patti Brown, Director of Special Programs Initiatives, Institute for Study Abroad

Jennifer Casasanto, Director of External Programs, Harvard School of Engineering and Applied Sciences

Colleen Corcoran, Program Assistant, ISEP-International Student Exchange Programs

R. Cole Cridlin, Study Abroad Advisor, Global Education Office, Virginia Commonwealth University

Sylvia Crowder, Senior Director, International and Foreign Language Education, Office of Postsecondary Education, U.S. Department of Education

Tienke Cunning, Director of International Career Services, The Pennsylvania State University (Penn State)

Jeanine Dames, Director of Employment Programs, UCS, Yale University

Gina M Del Tito, Program Specialist, Internships Abroad, Cultural Vistas

Anne Donnelly, Director, University of Florida

Debbie Donohue, President/Founder, Global Career Pathways

Teresa Finis, Director, International Programs in Engineering, College of Engineering, University of Illinois at Urbana-Champaign

Maj Fischer, Director, International Internship Program, University of Wisconsin-Madison

Jim Galvin, Director of Opportunities Abroad and Faculty-Led Programs, University of California, San Diego

Laura Godwin, Associate Director, Career and Internship Center, University of Rochester

Jonathan Gordon, Director, Office of Assessment, Georgia Institute of Technology

Bessie M. Green, Research Associate/Department of Agriculture, University of Maryland Eastern Shore

Eckhard A. Groll, Professor of Mechanical Engineering, Director of Office Professional Practice, Interim Assistant Dean of Engineering for Research, Purdue University

Hilary Hartley, Program Officer, International Student Exchange Programs (ISEP)

Milan Hayward, Special Assistant Career and Technical Education, Northern Virginia Community College

Margaret Heisel, Director of Center of Capacity Building in Study Abroad, NAFSA: Association of International Educators

Lynn Insley, Director, Career Development, Stevens Institute of Technology

Sue Kemnitzer, Deputy Division Director, Engineering Education and Centers, National Science Foundation

Heidi Koziresky, Assistant Director, Center for Study Abroad, University of Rochester

Mike McCartt, Program Director, Institute of International Education

Michael Milligan, Executive Director, ABET Inc.

Christine Fecenko Murphy, Assistant Dean-STEM Fields, The College of Global Studies, Arcadia University

KimOanh Nguyen-Lam, IFLE Program Director International and Foreign Language Education, Office of Postsecondary Education, U.S. Department of Education

Mary G. Noonan, Dean, Science and Engineering, Merrimack College

Lisa Norwood, Assistant Dean, Hajim School of Engineering and Applied Sciences

Maura O'Connor, Coordinator, Cooperative Education, Stevens Institute of Technology

Suzanne Olds, Assistant Chair, BME, Northwestern University

Helen Oloroso, Assistant Dean, McCormick Office of Career Development, Northwestern University

Adam Pagel, CSE International Program Coordinator, University of Minnesota

Veronica Perrigan, Assistant Director, Engineering Co-op and Career Services, University of Maryland

Roxana Pleacoff, Senior Program Manager, University Relations/J1 Programs, Cultural Vistas

Maria Richart, Associate Director, Rochester Institute of Technology

Erin Rooney-Eckel, Associate Director, University of Maryland

Wendy Sheets, Assistant Director, Study Abroad, University of Tulsa

Larry Shuman, Senior Associate Dean and Professor, University of Pittsburgh

Tess Smith, Senior Cooperative Education Coordinator, Drexel University

Sheryl Sorby, Visiting Professor, The Ohio State University

Dawn Strickland, Advising Dean, Columbia University

Nancy Sung, Program Director, Office of International Science and Engineering, National Science Foundation

Molly Maguire Teas, Senior Advisor for Education, Bureau of South and Central Asian Affairs, U.S. Department of State

Martin Tilman, President, Global Career Compass

Sherilyn Trompetter, International Internship Manager, University of Alberta

John Troy, Professor and Chairman, BME Department, Northwestern University

Katie Welsh Radande, Associate Director, International Programs and Study Abroad, Lehigh University

Appendix D: Program Reference List

University of Rhode Island
International Engineering Program
www.uri.edu/iep

Georgia Institute of Technology
International Plan
www.internationalplan.gatech.edu

Purdue University
GEARE (Global Engineering Alliance for Research and Education)
https://engineering.purdue.edu/ProPractice/Programs/GEARE

University of California, San Diego
PRIME: Pacific Rim Experiences for Undergraduates
http://prime.ucsd.edu

Institute of International Education
Global Engineering Education Exchange Program (Global E^3)
www.iie.org/en/Programs/GlobalE3

Appendix E: Benchmarking Questions

What follows are sample questions that were developed for a survey that will be distributed summer 2012 to education abroad and career staff professionals in an effort to gain information and assist with benchmarking processes.

How many students participate in the work abroad program each year?

Are the internships in corporate settings, university labs, or other settings?

Is second language background required for students to participate in the work abroad program? If so, how much?

What type of assessment is done? Who is included?

How many full-time staff are assigned to the work abroad program?

Where is your work abroad office housed, and what are the reporting lines?

How is the program supported financially? What are the funding sources?

Do students have to pay for the experience? If so, how much?

What type of support services is offered (e.g. visas, site placements, etc.)?

What type of liability insurance coverage is used?

Is the work abroad experience credit bearing or not?

Define terms for:

- Assessment and data collection
- Research vs. research internships

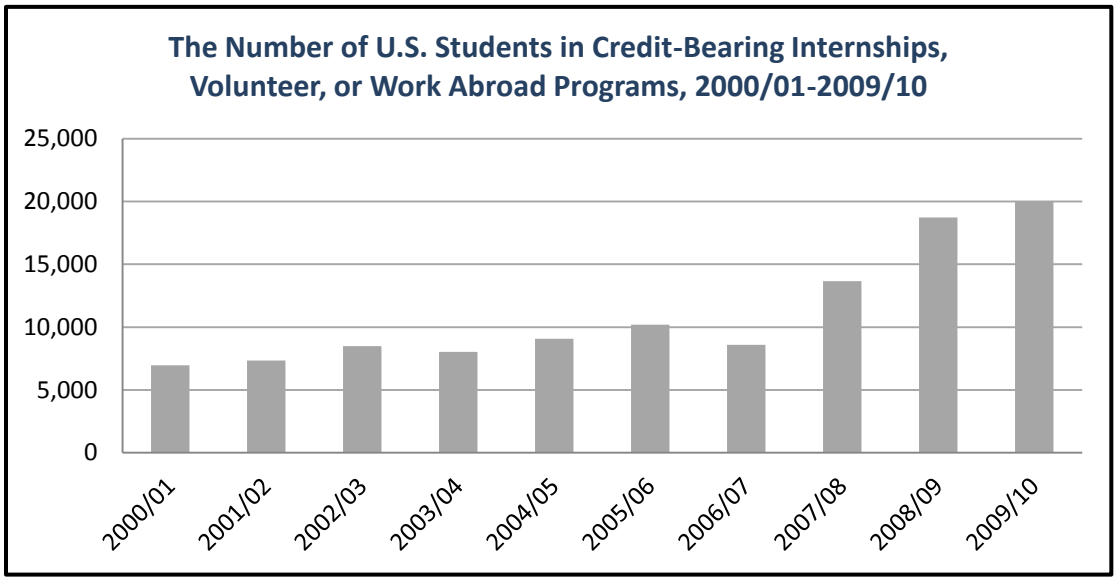
How are students tracked? How do we find them if they are going independently?

Appendix F: U.S. Campus Experience with International Internships: Findings from an IIE Survey

By Raisa Belyavina and Peggy Blumenthal, Institute of International Education
The authors would like to thank all higher education institutions and provider organizations that responded to the IIE survey, as well as the Freeman Foundation for their support.

Introduction

Through its annual *Open Doors* survey, the Institute of International Education (IIE) has collected data over the past decade on participation by U.S. students in credit-bearing internships abroad. As indicated in the chart below, there has been substantial growth in this sector, with close to 700 U.S. campuses reporting that 20,000 of their students received credit for internships, volunteering, or work abroad in 2009/10 (including summer 2010). This represents a seven percent increase over the prior year's total, and almost triple the number reported a decade ago. Beginning this year, *Open Doors* will also collect data on non-credit/co-curricular internships abroad.



Source: *Open Doors 2011.*

A more recent survey conducted jointly in September 2011 by IIE and the Forum on Education Abroad gathered data on non-credit-bearing internships/work experiences abroad. Responses from 153 U.S. campuses reported on 6,700 U.S. student participants in such work/internship experiences in 2010, both paid and unpaid.

It is clear from these two data sets that international internships are an increasingly appealing option for students seeking experience abroad related to their future career goals. The U.S. Department of State's recently launched "Passport to India" campaign focuses on this target audience as a way of expanding U.S. student engagement with India, and is soliciting corporate support for in-country internships hosted by either U.S. or Indian companies. Similarly, the "100,000 Strong" initiatives in China and in the Americas announced by President Obama encourage U.S. higher education institutions and the private sector to support a wide range of opportunities for U.S. students in regions of increasing economic and strategic importance to the United States.

In order to understand the opportunities and challenges that U.S. campuses face in implementing international internship programs, particularly in increasingly popular destinations in Asia, IIE conducted a "flash survey" in November 2011. Ninety U.S. colleges and universities were invited to participate in the survey, selected from those which had reported to *Open Doors* that significant numbers of their students either participated in credit-bearing internships internationally or received credit for study in Asia, though not necessarily on internships. Additionally, the survey was announced on the SECUSSA listserv and the IIE.Interactive newsletter.

The 46 responding institutions included a diverse, but not necessarily fully representative, sample of U.S. higher education institutions: about half of them were public universities and the rest a mix of private universities and small liberal arts colleges. They reported that nearly 4,000 students participated in internships abroad in the past academic year (2010/11), with most sending fewer than 50 students annually, and a handful sending more than 100 students annually. Slightly less than half of the students (42 percent) undertook internships arranged by their home campus, with many others placed through third parties, and 12 percent finding their own placements.

Survey Findings

1. How internships are arranged on U.S. campuses

Half of the international internship programs were handled by the responding campuses' study abroad offices, with 20 percent handled through career services and the remaining 30 percent handled in other ways, including through faculty, co-op/internship offices, third-party providers, academic departments (e.g. engineering), and student organizations such as AIESEC. Twenty percent of responding campuses reported that international internships were required as part of the students' academic program, with another 10 percent reporting that internships

(not necessarily international ones) were a requirement in some graduate programs (e.g. public health) or that international experience was required but not necessarily in the form of an internship. Two-thirds of responding campuses awarded academic credit for internships abroad, while 16 percent reported that no such credit option was available. The remaining respondents noted that credit might be arranged in some cases and through various mechanisms, but several commented that their students preferred non-credit internships. One large public research university, which reported the largest number of students in international internships, sent two-thirds of its student interns on "co-curricular" (not-for-credit) internships. Another responding campus, which places 50+ students in internships annually, noted that internships abroad typically require 35-40 hours per week and thus leave no time for academic coursework.

2. Paid vs. unpaid internships

The majority of campus respondents (52 percent) said that students were not paid by internship hosts, 37 percent said that some students received payment (depending on the type of internship), and 5 percent reported that students were always paid by the host. In follow-up phone interviews with a few respondents, we learned of one major engineering school that places hundreds of its graduate students annually in Asia-based corporations, where the employers charged substantial fees to host these highly prized interns. We also were told that engineering students often receive stipends for their internships abroad, which sometimes are used by the host as part of the vetting process for later full-time employment.

3. Foreign language requirement and length of internships

Seventy percent of respondents did not require language competency or language study for overseas internships, with another 20 percent requiring language study prior to internships, and 5 percent including language instruction during the time abroad to supplement the internship experience. When asked about the typical length of internships abroad, 70 percent indicated that summer internships were most typical, with 52 percent also indicating that semester-long internships were typical (respondents could pick more than one option). A handful of replies described typical internships as shorter (2-3 weeks) or longer (10 weeks minimum) and not always during the summer.

4. Average costs of internships and major fields of study

When asked about the average costs for a summer internship, excluding tuition costs, respondents were evenly divided between "less than $5,000" and "$5,000-$10,000"; no respondents suggested costs over $10,000. The varied cost-of-living in host countries (e.g. Japan vs. Vietnam) likely explains this wide range of costs, as well as the varied length of

summer internships, from 6 to 10 weeks. Costs for semester and quarter-term internships mostly fell within the $5,000-10,000 range; a significant number of respondents said that semester programs cost $11,000-$15,000. Top majors of students taking internships abroad included business (the most popular), social sciences, engineering, health sciences, and humanities.

Other fields noted by respondents included foreign languages, physical/life sciences, and fine/applied arts. In the science, technology, engineering, and mathematics (STEM) fields, engineering was reported by four institutions as the top major of students on internships abroad and by two institutions as the second most popular major for internships abroad. Science was reported by two institutions as the second most popular major and also by two institutions as the third most popular major for internships abroad. Mathematics was reported by one institution as the second most popular major for internships abroad.

5. Partner organizations, use of alumni, and internship types

When asked what resources were used to connect their U.S. students with overseas internships, most respondents indicated that a variety of resources were used. Seventy-seven percent used outside organizations to arrange internships and 57 percent said they used partner universities abroad. Forty-three percent said they used alumni networks in the host country, and 25 percent used alumni networks in the U.S. Thirty percent used professional and business associations, and 27 percent used "other" resources, including faculty and staff members dedicated to internship advising, local/state companies that work internationally, internship websites, international career fairs, family connections (of the students), etc. Most respondents had students interning in business/for-profits and nonprofit agencies, and a significant number also in foreign government and international agencies, with some at research institutions, arts organizations, and schools/universities abroad.

6. Internship locations and use of alumni in securing placements

When asked about internship locations, 75 percent placed some of their students in Asia, with the most popular country by far being China (selected by two-thirds of respondents). One-third also placed students in India, South Korea, Japan, or Thailand, with smaller numbers placing students in Singapore, Indonesia, Vietnam, and other locations. Asked if they had active alumni networks in these countries to assist in internship placement, 70 percent replied "no" and 30 percent replied "yes." The range of ways that Asia-based alumni were engaged included "contact through university clubs or alumni chapters abroad," and "assigning each student an alumni mentor." Some replied that they are just starting to tap into this network.

7. Challenges in interning abroad

When asked about the major challenges in providing overseas internships (and invited to check as many that apply), 77 percent cited "funding/costs," 59 percent cited "identifying internships that are a good fit," 50 percent cited "visa issues," 48 percent cited "administrative/ logistical," and 43 percent cited "contacts overseas." Phone interviews identified other challenges, including "preparing students for the cultural challenges," "coping with emergencies abroad without a local office," and "getting students interested in internships abroad, including an ability to communicate in the host country language."

8. Findings from a separate survey of education provider organizations survey

In addition to the survey sent to U.S. campuses, IIE also administered a survey to education provider institutions that arrange internships and education abroad programs for U.S. students. This survey was announced on the SECUSSA listserv in November 2011 and sent to members of the Forum on Education Abroad that were not higher education institutions. IIE received responses from 34 organizations, which reported over 3,600 students participating in their internship programs overseas. The majority of organizations (53 percent) reported placing between 1-50 students in overseas internships annually, and 32 percent reported placing more than 100 students in overseas internships annually. Seventy-one percent of reported students were on unpaid internships, and 38 percent of students received academic credit for their internship. Eighteen percent of responding organizations reported that language study is a component of the internship, and 26 percent have language requirements that must be completed prior to the internship. Only two organizations stated that they provide full financial support for internships, and four reported that living stipends or travel stipends are offered. The responding organizations offer a number of services to students, including providing/arranging housing (85 percent), assisting with visas (68 percent), and making travel arrangements (24 percent).

The vast majority of the provider organizations (79 percent) reported that summer is the typical time when students pursue overseas internships. Semester-long internships (71 percent) and quarter-based internships (35 percent) were the next most popular. Fifty percent of internships were full-time and 31 percent of internships were part-time, with 19 percent reporting another arrangement. The cost to students for summer internships was split evenly between programs costing under $5,000 and programs costing $5,000-$10,000. The cost for semester-long internships was $5,000-$10,000 for 46 percent, and $11,000-$15,000 for 29 percent of reporting organizations. Quarter-long programs were in the $5,000-$10,000 range for 59 percent of reporting organizations and less than $5,000 for 35 percent. For 85 percent of respondents, participant fees are the primary source of funding for programs.

The most popular major of students pursuing internships overseas is business and management. Humanities and social sciences are the second and third most popular fields of study of students going on internships overseas, respectively. In this survey, STEM field majors were reported by four providers as the top major, by five providers as the second most popular major, and by five as the third most popular major.

Conclusion

The growing number of U.S. students going abroad for internships reflects a broader global trend of increasing participation in a diverse range of international educational experiences. In addition to steady increases in traditional study abroad programs, U.S. students are finding new, nontraditional opportunities to engage with the world, including participating in internships that expose students to a wide range of professional settings around the world.

Over the last decade, the number of students participating in for-credit internships, volunteer or work abroad programs has increased threefold. Nevertheless, many challenges remain to increasing student participation in these programs. In IIE's survey on *U.S. Students Pursuing Internships Abroad,* more than three-quarters of responding higher education institutions reported funding/costs to be the biggest challenge, in addition to a range of logistical challenges such as matching students with internships that are a good fit and obtaining visas. Despite these challenges, U.S. higher education institutions and provider organizations are well positioned to be the catalysts in increasing student participation in a range of educational programs abroad. The findings from two IIE surveys on U.S. students in internships abroad provide insights on how internships are arranged on U.S. campuses, and institutional capacity and availability of resources such as partner organizations and alumni to increase internship opportunities. As the field of international education continues to expand beyond traditional study abroad programs, more students will seek educational opportunities abroad that cater to their busy schedules and individual interests. Programs that introduce students to international labor markets and provide professional work experience overseas can be expected to become a significant part of the U.S. higher education experience. The findings presented in this survey summary are part of IIE's ongoing research on emerging trends in international education around the world. IIE welcomes feedback on this report and collaboration on future activities related to this topic.

About the Institute of International Education

The Institute of International Education, founded in 1919, is a world leader in the exchange of people and ideas. IIE has a network of 30 offices worldwide and 1,100 college and university members. In collaboration with governments, corporate and private foundations, and other sponsors, IIE designs and implements programs of study and training for students, educators, young professionals, and trainees from all sectors with funding from government and private sources. These programs include the Fulbright and Humphrey Fellowships and the Gilman Scholarships, administered for the U.S. Department of State, and the Boren Scholarships and Fellowships administered for the National Security Education Program. IIE's publications include the *Open Doors Report on International Educational Exchange*, supported by the Bureau of Educational and Cultural Affairs of the U.S. Department of State, as well as *Funding for United States Study,* the *IIEPassport Study Abroad* print and online directories, and the StudyAbroadFunding.org website. **www.iie.org**

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The core activities of the Center fall within three key areas:

- Driving policy and program decisions through applied research and analysis
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