

DIALOG IV PROGRAM REPORT

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INTRODUCTION

The Dissertation Initiative for the Advancement of Limnology and Oceanography (DIALOG) is an international program initiated in 1993 to promote understanding and collegial interactions across the aquatic sciences. The program is sponsored by Whitman College and the American Society of Limnology and Oceanography (ASLO) and co-sponsored by the American Geophysical Union (AGU), Canadian Society of Limnologists (CSL), Estuarine Research Federation (ERF), Ecological Society of America (ESA), International Society of Limnology (SIL) and The Oceanography Society (TOS). The program includes:

- **Ph.D. Dissertation registry.** Recent aquatic science Ph.D. recipients from around the world are invited to submit an abstract of their Ph.D. dissertation research for inclusion in the on-line DIALOG Dissertation Registry.
- **Electronic Communication.** Once registered, participants are placed on an e-mail distribution list. Weekly messages post job announcements, DIALOG Program updates, and other information/announcements of interest to recent grads. Job and other announcements may be sent to phd@whitman.edu for distribution.
- **Data base.** Demographic information is collected with the dissertation abstracts in order to characterize recent graduates for human-resource purposes.
- **Symposium.** Symposia enhance interdisciplinary understanding and promote collegial interactions across the aquatic sciences. Participation is limited to 40 recent PhDs who are selected by committee based on the application materials submitted. A special symposium for coastal and estuarine scientists (DIACES) will be held in October, 2002. Contingent on success of a new proposal, the DIALOG V symposium is scheduled for October 2003. Sponsoring agencies provide support for symposium travel and on-site expenses.

This report summarizes results from the DIALOG IV Program, which targeted individuals completing their last Ph.D. requirements April 1, 1999 - December 31, 2000. DIALOG V is open to PhDs graduating Jan. 1, 2001 - March 31, 2003.

OVERALL PARTICIPATION

The dissertation registry is the gateway to the DIALOG program. It provides a unique introduction to the work of this most recent generation of aquatic scientists, and enables demographic data to be collected with the abstract. Each year increasing numbers of graduates take advantage of the opportunity to be part of this international collection, and more scientists, employers and

administrators use this resource to identify recent graduates and get an overview of their work. Dissertation abstracts are submitted on line and immediately posted on the website in a fully searchable format (<http://aslo.org/dialog/dcite.html>). Each issue of the *L&O Bulletin* contains dissertation citations and e-mail addresses of those submitting abstracts since the previous bulletin deadline. Program participants receive a compilation of abstracts, a directory, and a demographic profile of their cohort.

Overall, **221 citizens of 40 countries were represented** in DIALOG IV. This represents a 33% increase compared with DIALOG III (Weiler, 2000). Highlights from the database and symposium are presented below.

DEMOGRAPHIC INFORMATION

Forty countries and 146 institutions were represented (Table I). One hundred five graduates completed degrees at 58 U.S. universities while 116 completed degrees at 88 non-U.S. institutions. **Citizens of the following countries submitted abstracts:** Australia (11); Austria (3); Belgium (2); Brazil (5); Bulgaria (1); Canada (15); Chile (1); China (11); Czechoslovakia (2); Denmark (3); Finland (2); France (3); Germany (22); Greece (1); Hungary (2); India (1); Israel (1); Italy (1); Japan (4); Jordan (1); Lithuania (1); Malawi (1); Mexico (1); The Netherlands (5); New Zealand (2); Nigeria (1); Poland (2); Portugal (2); Russia (2); South Korea (3); Spain (2); Sweden (6); Switzerland (1); Thailand (1); Turkey (1); Ukraine (3); United Kingdom (12); United States (81); Uruguay (1) and Venezuela (1).

The 221 participants were divided into 9 citizenship groups to clarify regional trends in participation (Figure 1). DIALOG IV included 37% Americans, 29% western Europeans, 9% Asians, 7% Canadians, 6% Australian/New Zealanders, 6% eastern Europeans, 4% Mexican/South Americans, and 1% Middle Easterners.

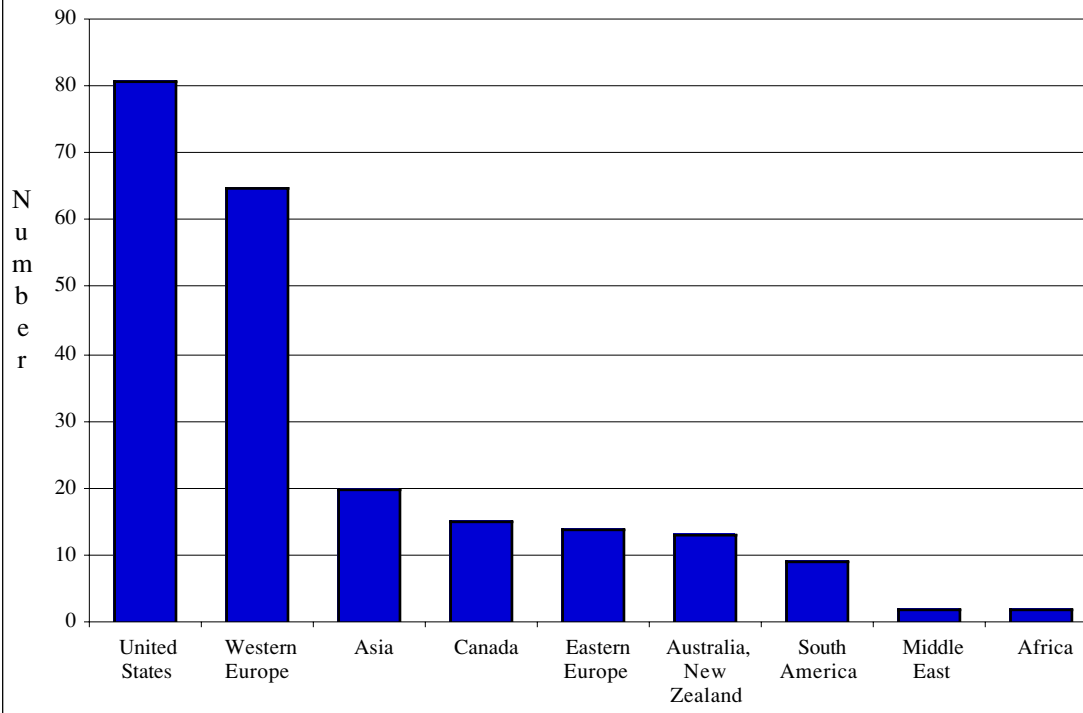
Participants included 105 graduates from U.S. institutions, with 81 American, 1 Australian, 2 British, 3 Canadian, 9 Chinese, 3 German, 1 Greek, 1 Mexican, 2 South Korean, 1 Swiss and 1 Venezuelan citizens. All American participants completed their PhDs within the U.S. Several Americans are on postdoctoral appointments in other countries.

Oceanographers outnumbered limnologists 140 to 81 (63% /37%) (Table II). American participants were even more skewed, with 69% oceanographers and 31% limnologists. There are many possible explanations for the imbalance, including: (1) More oceanographers might hear about the program; (2) Limnologists might be less interested in the program (for example, they might

Table I. Institutions granting Ph.D. Degrees to the 221 DIALOG IV Program participants. The number of participants who indicated limnology (lim) or oceanography (oce) as their primary field of interest is provided.

Lim	Oce	U.S. Institutions	Lim	Oce	Institutions Outside the U.S.	Lim	Oce	Institutions Outside the U.S. Cont.
1		Arizona State University	1		Agricultural Univ. Wageningen (Netherlands)	1		University of Ibadan (Nigeria)
1		Boston University	1		Bar Ilan University (Israel)	1		University of Innsbruck (Austria)
	4	College of William and Mary	1		Centre des Faibles Radioactivites (France)	2		University of Kiel (Germany)
	2	Columbia University	1		Charles University (Czech Republic)	1		University of Konstanz (Germany)
3		Cornell Univeristy	1		Cochin Univ. of Science and Technol. (India)	1		University of Lisbon (Portugal)
1		Dartmouth College	1		Dalhousie University (Canada)	1		University of Malawi (Malawi)
	1	Duke University	1		Ege University (Turkey)	1		University of New South Wales (Australia)
	1	Florida International University	1		Ehime University (Japan)	2		University of Otago (New Zealand)
	2	Florida State University	1		Griffith University (Australia)	1		University of Ottawa (Canada)
	1	George Mason University	1		Hebrew University of Jerusalem (Israel)	1		University of Oviedo-Uvieu (Spain)
1		Idaho State University	1		Helsinki University (Finland)	1		University of Plymouth (United Kingdom)
2		Lehigh University	1		Heriot-Watt University (United Kingdom)	2		University of Queensland (Australia)
	1	Loma Linda University	2		INRS-Eau, Université du Québec (Canada)	1		University of Regina (Canada)
1	1	Massachusetts Institute of Tech.	3		Inst. of Biol. of the Southern Seas (Ukraine)	1		University of Rome (Italy)
	3	Massachusetts Institute of Tech/WHOI	2		Institute of Oceanology PAS (Poland)	1		University of Sao Paulo (Brazil)
3		Michigan State University	1		James Cook University (Australia)	1		Univ. of South Bohemia (Czech Republic)
2		Michigan Technological University	2		Kosztuh University (Hungary)	2		Univ. of Southampton (United Kingdom)
	1	Mississippi State University	1		Kyoto University (Japan)	1		University of Stockholm (Sweden)
	3	North Carolina State University	1		Lancaster University (United Kingdom)	1		University of Sydney (Australia)
1	1	Ohio State University	1		Linköping University (Sweden)	3		University of Tasmania (Australia)
	1	Old Dominion University	1		Liverpool University (United Kingdom)	1		University of Technology (Australia)
	1	Oregon State University	1		Ludwig Maximilian Univ. Munich (Germany)	2		University of Tokyo (Japan)
	2	Rutgers, State Univ. of New Jersey	3		Lund University (Sweden)	1	1	University of Ulster (United Kingdom)
	1	Stanford University	1		McGill University (Canada)	1		University of Victoria (Canada)
	1	State Univ. of New York at Buffalo	1		Memorial Univ. of Newfoundland (Canada)	1		University of Vienna (Austria)
	3	State Univ. of New York at Stony Brook	1		Monash University (Australia)	1	1	Univ. of Wales at Swansea (United Kingdom)
	4	Texas A&M University	1		NERC (United Kingdom)	1		University of Warwick (United Kingdom)
1		University of Alabama	1		Netherlands Inst. for Ecology (Netherlands)	1		Uppsala University (Sweden)
1	1	Univ. of California at Davis	1		Netherlands Org. for Sci. Res. (Netherlands)	1		Xiamen University (China)
	1	Univ. of California at Irvine	1		Norwegian Polar Institute (Norway)	1		York University (Canada)
	7	Univ. of California at San Diego/SIO	1		Ocean University of Qingdao (China)	1		Zoological Institute (Russia)
	5	Univ. of California at Santa Barbara	1		Paul Sabatier University (France)	49	67	Total, Institutions outside the U.S.
1		University of Colorado	2		Queen's University (Canada)			
	2	University of Connecticut	1		Roskilde University (Denmark)			
1		University of Dayton	1		Sao Paulo University (Brazil)			
	1	University of Delaware	1		Seoul National University (South Korea)			
1	2	University of Georgia	1		Stockholm University (Sweden)			
	4	Univ. of Maryland at College Park	1		Technical University of Munich (Germany)			
	1	University of Maryland	1		Ume University (Sweden)			
	1	Univ. of Massachusetts Boston	1		Universidad de la Republica (Uruguay)			
	1	University of Miami	1		Universidade Federal Fluminense (Brazil)			
1		University of Michigan	1		Univ. Notre-Dame de la Paix (Belgium)			
1		University of Montana	1		Universite d'Aix-Marseille II (France)			
1		University of Nevada at Reno	1		University Libre de Bruxelles (Belgium)			
	1	University of New Hampshire	1		University Lisbon (Portugal)			
1		Univ. of New Mexico at Albuquerque	2		University of Alberta (Canada)			
	3	Univ. of North Carolina at Chapel Hill	1		University of Amsterdam (Netherlands)			
2		University of Notre Dame	1		University of Barcelona (Spain)			
	2	University of Rhode Island	8		University of Bremen (Germany)			
	1	University of South Carolina	1		University of British Columbia (Canada)			
	1	University of South Florida	1		University of Cologne (Germany)			
	1	University of Southern California	1		University of Copenhagen (Denmark)			
	2	University of Southern Mississippi	1		University of Freiburg (Germany)			
	1	University of Texas at Austin	1	2	University of Groningen (Netherlands)			
	1	University of Washington	2		University of Hamburg (Germany)			
2		Univ. of Wisconsin at Madison	1		University of Helsinki (Finland)			
2		Univ. of Wisconsin at Milwaukee	1		Univ. of Hong Kong (Hong Kong/China)			
1		Utah State University						
32	73	Total, U.S. Institutions			<i>Continued</i>			

Figure 1: Citizenship groupings for the 221 DIALOG IV participants.



more severe, with limnologists accounting for just 34% of American student members. This is of some concern, given the importance and fragility of our freshwater resources.

Women are comparatively well represented, comprising 40% of DIALOG IV participants (Table II). Americans women were present in the same proportion as the total DIALOG IV population. Based on the DIALOG data, women are better represented in the aquatic sciences than among Earth and space graduates surveyed by

identify more strongly with terrestrial ecology than with aquatic science); or (3) there might simply be fewer limnologists than oceanographers. A declining trend for limnologists is seen in the ASLO membership. Limnologists have decreased from 50% of American membership in 1992 to 42% in 2000. The trend among students is even

AGU and AGI (Giesler et al. 2001) where just 27% of year 2000 respondents were women. The NSF statistics for 2000 graduates indicates women in Earth, atmospheric and ocean sciences have increased from 22% in 1991 to 30.4% in 2000. Women currently represent 42.6% of biology graduates, up from 34.6% in 1990. Women tend to drop out of the science workforce more rapidly than men, even after the Ph.D. degree. A survey of the 1992-2001 DIALOG symposium participants is underway, and will compare career progression for male and female participants.

Minorities continue to be underrepresented. Just four of the 81 American participants belonged to underrepresented minorities (2 African American and 2 Hispanic). This is just 5% of the total and is similar to National Science Foundation (NSF) records for Earth, atmospheric and marine science (4.8% of graduates). Many programs currently exist to foster minority interest in the aquatic science; see www.aslo.org/mas/ and <http://www.geo.nsf.gov/occe/programs/reuprog.htm>. More are needed (Cuker, 2001a, 2001b). A new website has been developed to educate the community and highlight minority aquatic students and professionals: <http://www.aslo.org/mas/>.

Graduates are younger than Earth and space respondents from the AGU/AGI survey. The median age of American DIALOG IV respondents at time of PhD was 30.8 years and the average was 32.1 years. The range was 26.8-50.7 years. Just 9% were over the age of 40, compared with 23% of respondents from the AGU/AGI

	NUMBER	PERCENT
TOTAL	221	
Limnologists	81	37%
Oceanographers	140	63%
Male	129	58%
Female	86	39%
AMERICAN CITIZENS	81	
Limnologists	25	31%
Oceanographers	56	69%
Male	49	60%
Female	32	40%
DEGREES IN USA	105	
Limnologists	32	30%
Oceanographers	73	69%
Male	62	59%
Female	43	40%

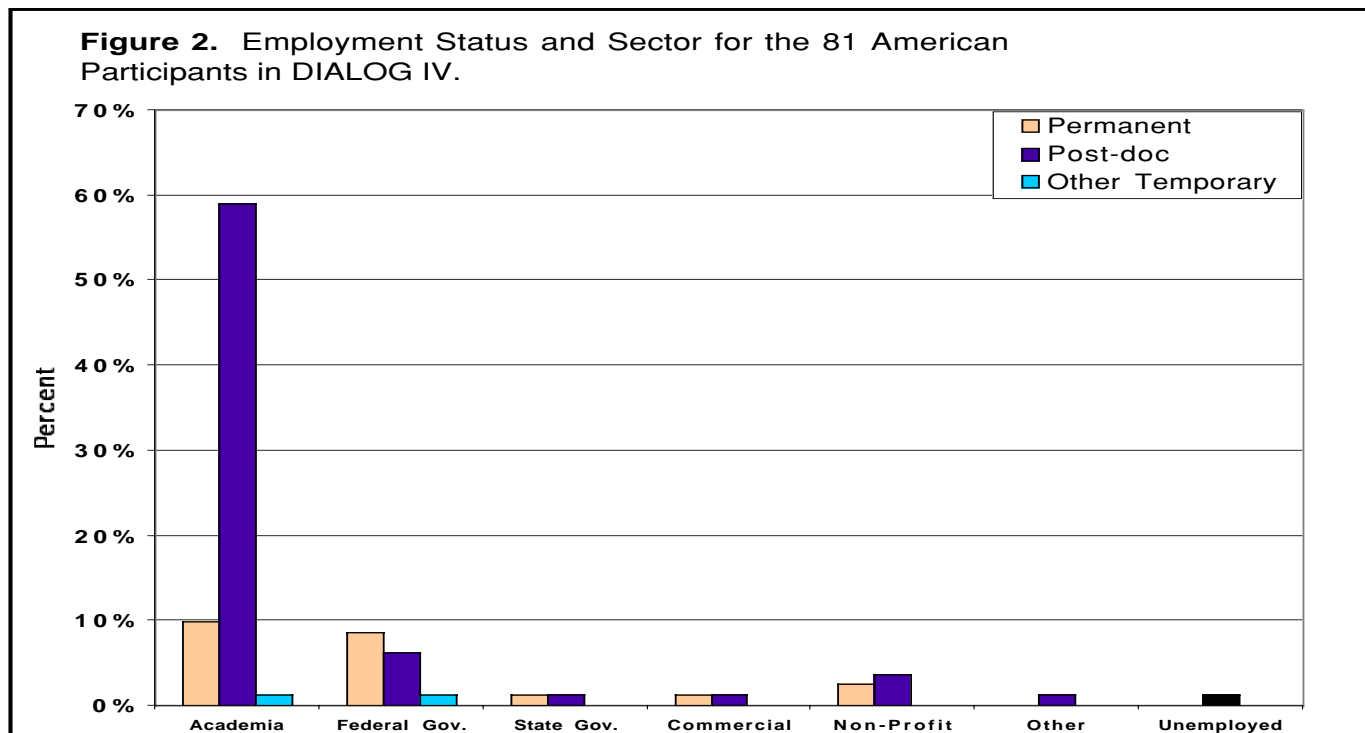
Table II. Number of DIALOG participants by field and gender. The total for the DIALOG IV program is compared with the number and percentages of American citizens and participants with PhD degrees from US institutions.

Earth and space scientist survey. Earth and space science respondents were older than DIALOG respondents, with a median age of 33.0 years at completion of PhD.

Most Recent Graduates are on postdocs. Of the 81 American participants, 73% held postdoctoral research appointments and another 4% held other temporary positions at the time of registration (Figure 2). Fifty eight percent of DIALOG IV participants registered within the first 6 months post Ph.D. and 78% registered during the

Academia and the Federal government are the largest employers. Of the 19 American respondents in permanent positions, 8 were in academia, 7 with the Federal government, 1 in state/regional government, 1 in business/commerce, and 2 in the non-profit sector.

Americans were more optimistic about the job market than their European Union counterparts (Figure 3). A full 48% of American participants rated the job market as excellent or good, while just 19% of EU

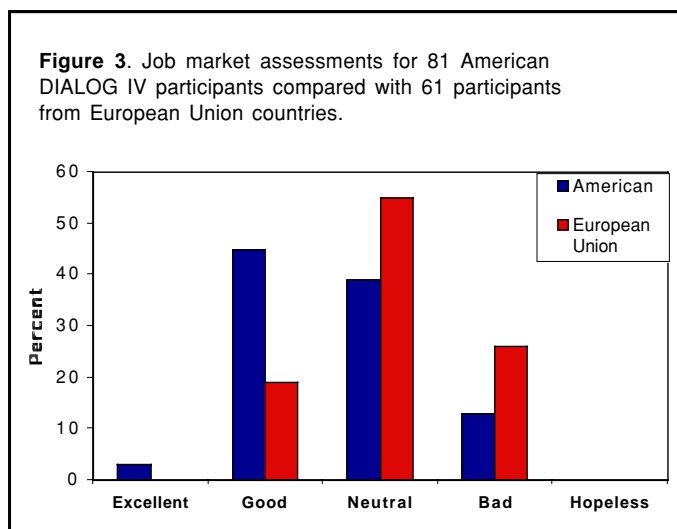


first year post degree. The remainder registered 1-2 years post degree.

Just one American participant was unemployed. As might be expected, most postdocs (80%) were in academia. The next largest postdoctoral employer was the Federal government, with 8% of graduates. The percentage on postdocs is much higher than for Earth, atmosphere and ocean science graduates from the NSF survey, where just 45% of 2000 graduates were pursuing postdocs (National Science Foundation 2001). This may indicate fewer job opportunities. While some DIALOG symposium participants indicated they chose a postdoc to broaden their background, others took them only to “buy time” while they searched for a permanent position.

Permanent positions are increasing. Nineteen (23%) of the American DIALOG IV participants held permanent positions at the time they submitted their abstract, up from 12% for DIALOG III. This same trend in increasing permanent positions is seen in the AGU/AGI survey of recent graduates (Giesler et al. 2001) and is most welcome.

participants did so. Thirteen percent of American participants considered the market bad or hopeless, compared with 26% of EU participants. American DIALOG IV participants were also more optimistic than American Earth and space science graduates surveyed by AGU (Giesler et al. 2001); 28% considered the market bad or hopeless and just 22% rated the market good or excellent.



The DIALOG database will become increasingly useful as the number of participants (hopefully) increases and as time goes by (so we can examine trends). The sample size (221 total, 81 Americans) is admittedly small. Based on an analysis of Consortium for Oceanographic Research and Education data, somewhere around 30% of American graduates are currently participating in the program (Weiler, 2000). While this response rate is consistent with most professional society surveys, more is always better. The current picture is just a snapshot, but with time we will be able to develop a portfolio which will enable us to identify patterns and trends.

SYMPOSIUM

“The connection with other top beginning scientists from a wide range of backgrounds encourages synergy and fosters a tangible sense of community.”

Anonymous DIALOG IV participant

DIALOG symposia bring together recent PhDs from across the aquatic sciences to provide an interdisciplinary “capstone” forum to complement the more focused graduate-student years and to catalyze collegial interactions and networking. The transition from student to professional is a difficult one. The opportunity to meet with peers to explore everything from job-hunting tactics to strategies for balancing personal and professional needs has frequently been cited as a major benefit of the symposia. Graduates are anywhere from around 6 months to 2.5 years post degree at the time of the symposium. This allows some of the more established participants to mentor those just graduating.

Two hundred twenty one graduates participated in the DIALOG IV Dissertation Registry, 123 applied for the symposium, 49 were accepted, and 44 attended. Of the 81 Americans who participated in the registry, 53 applied for the symposium, 29 were accepted, and 25 attended.

Funding from the European Commission and NSF International Programs enhanced the international nature of the symposium. The 44 participants included citizens of 14 countries: Australia (1), Austria (1), Canada (3), China (1), Germany (4), Israel (1), Japan (1), Jordan/Palestine (1), Netherlands (1), Spain (1), Ukraine (1), United Kingdom (2), United States (25) and Venezuela (1). Thirty of the participants received their PhDs in the USA.

The international composition provides valuable insight into research strengths and concerns in different parts of the globe. In the years to come, understanding gained from the symposium and the familiarity of this cohort with peers from diverse scientific specialties and geographic locations should positively impact individual careers and the overall development of the aquatic sciences. Indeed, past participants stress the advantage of

being able to count as friends as well as colleagues the “emerging experts” in a variety of fields.

DIALOG IV took place October 14-19, 2001 at the Bermuda Biological Station for Research (BBSR). Participants interact in both formal and informal contexts during the week-long symposium (Figure 4). During the week, participants present their research, received training in communication and teamwork skills, divided into working groups to practice skills and discuss emerging research, education and other professional issues. Representatives from NSF, NOAA and ONR attended the meeting and described agency programs. Information on the European Commission was also provided.

Symposium reports. Reports resulting from the DIALOG IV symposium include reflections on the student-adviser (mentor-mentee) relationship (Burks et al. 2002), advice on proposal writing (Karentz, 2001), and academic job-hunting tips (Baker et al. 2002). These and DIALOG reports are posted on the DIALOG website: Go to <http://aslo.org/> and click on “Recent PhDs”. Go from there to the “Publications” folder.

HOW TO PARTICIPATE

Visit <http://aslo.org/phd.html> to

Register your Ph.D. dissertation

or

View Dissertation Abstracts

An interactive form makes it easy to register. PhD dissertation abstracts are posted on webpage in a fully searchable format. The collection provides a unique overview of PhD research from around the world. This and other reports are posted online.

Once registered, graduates are automatically placed on an e-mail distribution list to receive program updates.

Submit job and other announcements to
phd@whitman.edu



Figure 4. Michele Van Son instructs DIALOG IV participants in communication and teamwork skills.

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