Northwest Center for Occupational Health and Safety and the Department of Environmental and Occupational Health Sciences Alumni Survey

Prepared for:

University of Washington
Department of Environmental and Occupation Health Sciences

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EXECUTIVE SUMMARY

Background and Purpose

This survey of graduate and undergraduate alumni was commissioned by the Northwest Center for Occupational Safety and Health (NWCOHS) and the Department of Environmental and Occupational Health Sciences (DEOHS) at the University of Washington. The survey was designed to establish a full profile of alumni, to obtain evaluations for training offered through their programs, to understand how well the instruction and guidance they received has served their career needs and to suggest future directions for academic and continuing education needs in Occupational Health Sciences.

Key Findings

Respondent Profile: The survey was completed by 370 graduates of the Department of Environmental and Occupational Health Sciences Program, 43 graduates of the Occupational Health Nursing Program and 3 graduates of the Health Services Research Training Program. Nearly one third (31%) were graduates within the past 10 years (between 1998 and 2008), and about half (51%) were females.

Most respondents said their latest degree in the DEOHS or the School of Nursing was a Masters: 60% were Masters in the DEOHS and 93% were Masters in the School of Nursing. Among those with graduate degrees in the DEOHS 37% said they were in the Industrial Hygiene and Safety program, 25% were in Environmental Health/Environmental Technology and 22% were in the Toxicology program. Most PhD graduates (79%) said they were in Toxicology.

Among all respondents, about one-fifth (20%) said they have either earned additional degrees after graduating from their NWCOHS and DEOHS programs (16%), or they were working on additional degrees (4%). Nearly two out of five of these alums (37%) said their degrees were earned, or would be earned at the University of Washington, and about half (49%) said their degrees were in a field related to environmental or occupational health.

Among those whose latest degree in the programs was a Bachelors, 30% said they earned additional degrees after their Bachelors, and 9% were working on another degree. These proportions are both significantly larger than the proportions of respondents with advanced degrees from the programs who said they earned additional degrees (11%) or were working on other degrees (1%).

Certifications: A majority of respondents (54%) said they received professional certifications following their graduations. Of those having professional certifications 36% said they were Certified Industrial Hygienists and 25% said they were Registered Sanitarians or Registered Environmental Health specialists.

While respondents did not significantly differ on the basis of whether or not they received professional certifications, they did differ by type of certification received if they had one: alumni with graduate degrees were more likely to say they were Registered Sanitarians or Registered

Environmental Health specialists, while alumni with Bachelors degrees were more likely to say they were Certified Industrial Hygienists.

Employment in the Field: Among all alumni surveyed (n=416), 10% said they have never worked in a field related to Environmental and Occupational Health Sciences. Respondents with Bachelors degrees were more likely than respondents with advanced degrees to say they have never worked in the field (20% compared to 6%).

Fifty-seven percent (57%) of respondents who have jobs in EOHS said they have worked in the field for more than 10 years, and 69% said their employment was in Washington State. Additionally, 60% acknowledged earning a salary between $40,000 and $100,000.

Occupations: Asked to choose from a list the type of job they currently hold or held most recently, 40% selected Practitioner and 30% said Manager. About one-fifth (22%) said they worked in Academia or in Research. Respondents with advanced degrees were more likely than those with Bachelors degrees to say they work in Academia or Research.

Specializations: Asked to choose from a list of occupational areas of specialization those that fit their current position or most recent position, 35% chose Industrial Hygiene, 27% indicated General Public Health Protection, 26% specified Environmental Assessment or Management and 25% named Workplace Safety.

Respondents with undergraduate degrees most often named General Public Health (49%), followed by Environmental Assessment or Management (35%), Industrial Hygiene (24%) and Workplace Safety (21%). Respondents with graduate degrees most often mentioned Industrial Hygiene (38%), then Workplace Safety (27%), Environmental Assessment or Management (23%), General Public Health (20%) and Toxicology – Risk Assessment ((19%).

The number of specializations varied depending on respondents' level of degree and program: alumni with Bachelors degrees were less likely than alumni with graduate degrees to have areas of specializations in their careers: 20% of undergrads indicated they had no specializations.

Types of Employment: A large majority (84%) said they were employed on a full-time basis and 18% said they were *primarily* employed as consultants. Of those not primarily employed as consultants 47% said they worked in Public Agencies, 36% said Private Industry, 6% specified a University setting or Academia and 5% said they worked for a Non-Profit. Respondents with Bachelors degrees were more likely to be employed in a Public Agency. In comparison, respondents with advanced degrees were more likely to be employed in Private Industry or in Academia.

Asked to describe the type of industry in which they are or were employed, over half mentioned either Government (35%) or Education/Research (20%). Ten percent (10%) said they worked in Manufacturing and 10% said they worked in multiple industries.

Supervisory Responsibilities: More than half of respondents (56%) said they supervised at least one employee.

Rating for Overall Training Received: Alumni who earned their degrees within the last 15 years were asked to give an overall rating for the training they received in their programs: *Excellent, Very Good, Good, Fair* or *Poor*. Results were very positive with 38% rating their programs *Excellent,* 41%

rating them *Very Good* and 17% giving a rating of *Good*. No one gave a rating of *Poor*, and just 3% (n=7) said, *Fair*. Alumni with advanced degrees were more likely than alumni with Bachelors degrees to give ratings of *Excellent* (44% vs. 24%); those with Bachelors degrees were more likely to give a rating of *Good* (29% vs. 13%).

Evaluation of Specific Program Elements: Alumni who earned their degrees within the last 15 years gave ratings for 11 specific program elements, using a scale of *Excellent, Very Good, Good, Fair* or *Poor*. Results were again quite positive: at least half the respondents overall gave a "top box" combined rating of *Excellent/Very Good* to all 11 aspects of training. These ratings were largely driven by respondents with graduate degrees whose range of top box ratings ran from a low 53% (for Real Work Application of Coursework) to a high of 83% (for Level of Student Funding Support). In comparison, ratings given by alumni with undergraduate degrees ranged from 26% (for Level of Student Funding Support) to 66% (for Classroom Instruction).

A comparison of mean ratings[1] given by respondents with advanced degrees and respondents with Bachelors degrees found significantly higher mean scores for graduate alumni than undergraduate alumni for three specific program elements: Research Mentorship, Access to Cutting-Edge Instrumentation and Level of Student Funding Support.

Evaluation of Specific Non-Technical Program Elements: Alumni who earned their degrees within the last 15 years also gave ratings for six non-technical aspects of their programs, using the same "*Excellent, Very Good, Good, Fair* or *Poor*" rating scale. Results found the range of "top box" ratings lower for these items than the range for technical aspects of the programs: top scores for non-technical elements ranged from 22% to 51%. Teamwork Skills and Experience gathered the largest proportion of top ratings (51%), while Job and Employment Placement Support gathered the smallest share (22%).

There were no significant differences between ratings given by graduate alumni and undergraduate. However, respondents with advanced degrees gave higher mean ratings than those with Bachelors degrees for four of the six non-technical program elements.

Experience with Coursework Outside the Graduate Curricula: Respondents were about equally divided in having experience with outside coursework – 47% said *yes*, 49% said *no* and 4% were unsure.

Experience with EOHS Continuing Education Coursework: Nearly two-thirds (64%) of respondents said they have taken EOHS continuing education coursework within the past 10 years. Asked where they received the instruction, 80% said through professional associations, 56% named private vendors, 52% said the University of Washington, 36% said at other universities and 5% specified government or state agencies.

Ratings for in-person or classroom continuing education coursework at the DEOHS were very positive: 30% gave a rating of *Excellent* and 54% gave a rating of *Very Good*.

[1] For comparative analysis of ratings, grades were encoded from 1=*Poor* to 5=*Excellent*. This made it possible to assign a kind of mean score to each evaluation.

Likely to Take DEOHS Continuing Education Coursework at UW in the Next 5 Years: There is a good share of interest in taking DEOHS continuing education coursework in the future: about two out of five (42%) said they would *Very/Somewhat Likely* to take CE. Respondents indicated that they would be most interested in taking professional development courses (69%), followed by courses offered on campus (50%). They also showed strong interest in taking coursework online (37%).

Application of Global Environmental and Health Sciences: Alumni having work experience in EOHS were asked whether their practices encompass global environmental or health sciences. Three out of ten (30%) answered *yes*. Respondents with the highest levels of work experience (10 years or longer in EOHS) were more likely to say their practices encompass global environmental or health sciences.

Although alumni with advanced degrees more often said their practices encompass global environmental or occupational health and safety, they were not significantly more likely than undergrad alumni to answer *yes*.

Types of global work said to be applied in practice include occupational health issues connected to the workplace (27%), environmental clean-up - specifically hazardous materials handling, pollution and water quality (23%) and consulting and technical assistance (14%).

Respondents whose practices encompass global environmental or health sciences were asked to give suggestions for how the UW Environmental & Occupational Health Program could better prepare students to work globally. A large proportion (43%) said there should be more classes or coursework on related global issues – for example, offer a Global Health Program or Global Health Education focused on other places around the world. About one fifth (19%) said the program should offer internships, international exchange opportunities and placement assistance.

Assessments of How Much Work Practices Currently Encompass Occupational Health & the Broader Environment: Using a scale of measure from *no commonality* between occupational health and the broader environment (a rank of "1") to *total commonality* between the two (a rank of "5"), respondents gave a mean score nearly right in the middle of the scale (3.15). A sizeable proportion (10%) was unable to assign a rank, and many respondents (22%) chose a middle ranking ("3").

Assessments of Extent to Which Academic Training Should Maintain the Distinction or Completely Integrate Occupational Health & the Broader Environment: Using a scale of measure from *maintain the distinction* between occupational health and the broader environment (a rank of "1") to *complete integration* of the two (a rank of "5"), respondents were more likely to favor having academic training integrate the two areas (39% gave a scale ranking of 4 or 5), than maintain a distinction between the two (20% gave a scale ranking of 1 or 2). Many respondents were again unable to assign a rank (10% said *don't know*), and many chose a mid-scale rating of "3" (31%). The mean score for this item was 3.28.

Perception of Personal Impact on the Environment, Worker and General Population Health and Safety: A very large majority of alumni they felt they had made a positive impact in their careers on the environment, worker health and safety and general population health and safety (80%). This proportion includes those who said they felt they had made an extremely positive impact (16%).

Most Significant Occupational Challenges: Respondents often named compliance with new regulations, guidelines and standards as significant occupational challenge (17%). Although they were asked not to consider internal politics or personal issues, including budget issues, many also named politics, personal or budget issues (14%). One out of ten (10%) mentioned the slow economy or loss of positions in the industry and 9% said keeping up with changes and advancements in technology.

Staffing Expectations in the Next Five Years: A majority of respondents said they thought their companies would either maintain staff levels (42%), or increase staff (17%). Although about one out of six (16%) said they thought there would be decreases in staff levels, 25% said they were unsure. Alumni with Bachelors degrees were significantly more likely than alumni with advanced degrees to say they expect a decrease in staffing in the next 5 years (25% vs. 13%).

Suggestions for Program Changes Needed to Prepare for Future Work in the Field: About one out of six respondents (17%) said programs should offer more exposure to work in the field, specifying a need for real world experiences (10%), internship-externship programs (4%) or hands-on involvement (3%). Nine percent (9%) said training should incorporate management and business aspects into the curriculum and an equal proportion (9%) said there should be training or mentoring provided for students.

Areas of Study Needed for Future Occupational or Environmental Health Issues: Respondents were asked to indicate from a list of study areas those which should be incorporated into academic training for future environmental or occupational health issues. About two-thirds said Management (64%) and Use of New Technologies (63%), and nearly three out of five (58%) said Effective Training Techniques. Nearly half indicated a need for Economics coursework (46%) and studies in Cultural Competency (46%).

Doctor of Nursing Practice Degree Program: Survey results found a wide split of opinion about six statements made in reference to the Doctor of Nursing Practice Degree Program. This occurred in conjunction with particularly large proportions of "non-response" for the questions (*don't know*, or refusals to answer). The rate of non-response ranged from 5% (n=2) to 30% (n=13). Additionally, sizeable segments of respondents indicated they neither agreed nor disagreed with four statements (giving a neutral rating of "3"):

- The DNP will enhance training needed to succeed in professional practice (27% gave a neutral rating of "3").
- My organization would benefit from a person with DNP training and skills (23%).
- My organization would hire someone with DNP-level qualifications (23%).
- DNP is an added benefit for OHNs in practice (21%).

Agreement was weakest for this statement: My organization would hire a DNP for positions currently held by employees with MN and MS degrees (31% *Agree/Agree Strongly*; 66% *Disagree/Disagree Strongly*).

Conclusions

Alumni responses to this comprehensive survey present a set of favorable results. Graduates appear to be successful, with a very large proportion currently or previously employed in the field of EOHS, and employed on a full-time basis. A majority hold professional certifications and more than half have supervisory responsibilities. Those with advanced degrees have more areas of specialization in their careers, which they more often direct towards work in Private Industry, Academia or Research. Overall, a large majority said they feel they've made a positive impact on the field in their careers.

Graduates are generally very positive about the instruction provided in their programs. Four out of five gave top ratings (*Excellent/Very Good*) for overall training received, and at least half gave top ratings for all 11 specific elements that were asked about the programs. Alumni with advanced degrees gave larger shares of top ratings perhaps suggesting that more concentrated exposure to the programs produces more favorable perspectives of the education received. Graduate alumni more often than undergraduate alumni described the coursework as *challenging and robust*.

Some findings indicate that there may be opportunities for affirmative change offered in a few non-technical aspects of the programs. Graduate and undergraduate alumni were less enthusiastic in their ratings for interactions with students outside the program areas, job and employment placement support, and instruction about forming leadership skills. These would be areas in which to focus greater emphasis not only because ratings were lower for these things, but also because alumni often suggested that program changes be made in these areas. To better prepare students for future work in the field, alumni often said there should be more exposure to field work, such as more internship-externship programs. They also said they thought programs should incorporate management and business topics into the curriculum and provide more emphasis on mentoring students.

Alumni mentioned many types of challenges that are significant in their occupations. These include keeping up with new regulations, guidelines and standards, and also staying current on changes and advancements in technology. Continuing education coursework may be a viable way to channel this type of information to busy graduates. It may be worthwhile to explore the possibility of incorporating topics of technological interest into professional development courses. Ratings for in person or classroom courses in DEOHS Continuing Education are strongly positive. Although many say they are interested in taking DEOHS continuing education courses in the next five years, there remains good potential for growth in CE, especially in today's competitive workplace.

DETAILED FINDINGS

Introduction

The Northwest Center for Occupational Safety and Health (NWCOHS) and the Department of Environmental and Occupational Health Sciences (DEOHS) at the University of Washington are interested in understanding how well their programs are providing students what they need to succeed in their careers. The NWCOHS and DEOHS also wish to foresee the future needs in the fields of occupational and environmental health. For these purposes, the Center and Department contracted the services of Gilmore Research Group to conduct a survey of graduates of these programs in order to achieve the following objectives:

- Establish a full profile of alumni;
- Determine the overall evaluation they give for training received;
- Obtain evaluations for specific technical and non-technical elements of the programs;
- Understand experiences with and interest in DEOHS Continuing Education;
- Discover current applications of Global EOHS; and
- Determine perceptions of value offered by the Doctor of Nursing Practice Degree to organizations and to individuals.

Methodology

Gilmore Research conducted 271 telephone interviews and 145 web surveys with University of Washington graduates from the Department of Environmental and Occupational Health Sciences Program, the Occupational Health Nursing Program and the Health Services Research Training Program beginning February 12th 2009 and ending March 7th 2009.

With assistance from NWCOHS and DEOHS, Gilmore invited key faculty from these programs to participate in an off-site focus group to obtain opinions regarding the broad goals and objectives of the study. Both written exercises and group discussion were used to elicit comments about what was most desired in the survey. Ideas that emerged from this meeting were then incorporated into the design of the questionnaire.

Prior to fielding the survey was completely pre-tested to assure that concepts presented in the questions were adequately understood and were appropriately gauged to draw out meaningful opinion. The average length of the telephone survey was 12.8 minutes. The overall response rate for survey respondents was 38.3%. The response rate for respondents graduating prior to 1993 was 40%. The response rate for more recent graduates (from 1993 to 2008) was 37.4%.

This summary report presents findings as a set of aggregate results, along with breakouts by graduate/undergraduate respondents and by programs of study, where relevant. Findings based on analysis of stratified subgroups are also discussed. Subgroups of respondents were partitioned into several segments for analysis. These include Type of Survey Completed, Department, Type of DEOHS Degree, Type of Nursing Degree, DEOHS Program (post-grads, only), Year of Degree, Additional Degrees Received in DEOHS, Employment in EOHS, Certification, Years of Employment, Type of Organization, State, Gender and Income.

References to significant findings sometimes include only major differences, when a particularly large number of differences occur across a number of segments within a subgroup. For a complete summary of statistically significant differences, please refer to the cross tabulations of response data ("Wincross Tables") presented under separate cover. The cross-tabulation tables (2 sets) are organized in the order in which questions were presented in the survey, and each set of tables is preceded by a Table of Contents. These tables can be used to supplement information summarized in text and graphics presented in the report: cross-reference questions shown in the base of the graphics with questions appearing in the tables.

Statistical significance is determined by independent T-tests for means and independent Z-tests for response proportions. Statistically significant findings between subgroups of base sizes 50 or more are called out in the report.

The maximum margin of error for the total sample of 416 is ±4.8 percentage points at the 95% level of confidence with a response proportion of 50%. Reported differences between subgroups are significant at the 95% level of confidence. Please note: *response proportions in figures and tables may not sum to 100% because of rounding.*

Profile of Survey Respondents

Table 1 displays two demographic indicators included in the survey - gender and year of graduation. It shows that a majority of survey respondents were female (51%). It also shows that most of those surveyed (71%) earned their degrees within the past 20 years. This includes about 3 out of 10 (31%) who said they graduated within the last 10 years.

Table 1
Demographic Profile
All respondents

(Base)	Total (416)
Gender	
Male	48%
Female	51
Year of Degree	
1965 to 1986	29%
1987 to 1997	40
1998 to 2008	31

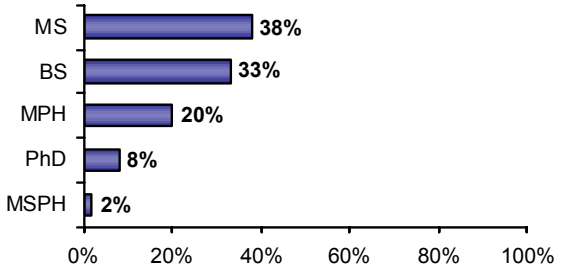
Program of Study and Degree Earned

The survey was completed by 370 graduates of the Department of Environmental and Occupational Health Sciences Program, 43 graduates of the Occupational Health Nursing Program and 3 graduates of the Health Services Research Training Program.

Most respondents said they earned a Masters degree from UW: 60% earned a Masters in a program offered by the Department of Environmental and Occupational Health Sciences and 93% earned a Masters degree in the School of Nursing. (Figures 1A and 1B)

Figure 1A
Degrees Earned in the Department of Environmental and Occupational Health Sciences Program

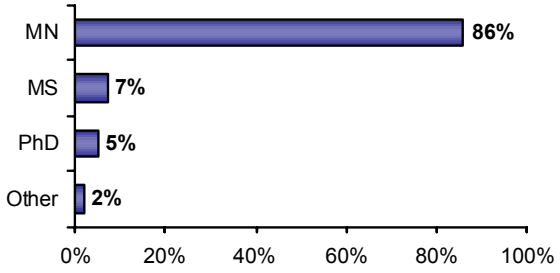
(Base = 370)



Question 2A: What was the latest degree you earned from UW in the Dept. of Environmental and Occupation Health Sciences?

Figure 1B
Degrees Earned in the School of Nursing

(Base = 43)



Question 2B: What was the latest degree you earned from the UW School of Nursing?

Of those having advanced degrees in the DEOHS, 37% said they were graduates of the Industrial Hygiene and Safety Program. (Table 3) Of those having Doctoral degrees, a large proportion (79%) said they were in the Toxicology program. (Table 2)

Table 2
Types of Degrees Earned in Each DEOHS Program
DEOHS Graduates with Advanced Degrees

(Base)	Total (249)	MS (140)	MPH (74)	PhD (29)	MSPH (6)
Industrial Hygiene & Safety	37%	40%	35%	14%	83%
Environmental Health/Environmental Technology	25	31	26	0	17
Toxicology	22	21	4	79	0
Environmental & Occupational Health (MPH)	7	4	14	7	0
Occupational & Environmental Medicine	6	1	18	0	0
Other/Unspecified	2	2	4	0	0

Question 2A: What was the latest degree you earned from UW in the Dept. of Environmental and Occupation Health Sciences?

Question 3: In which program did you receive that degree?

Additional Degrees and Certification

Among all respondents, about one-fifth (20%) said they have either earned additional degrees after graduating from their NWCOHS and DEOHS programs (16%), or they were working on additional degrees (4%). Nearly two out of five of these alums (37%) said their degrees were earned, or would be earned at the University of Washington, and about half (49%) said their degrees were in a field related to environmental or occupational health.

Table 3 shows a breakout of later degrees earned, or in process, by alumni with Bachelors degrees and alumni with advanced degrees. Though the sample sizes are quite small, the table shows that the largest proportion of graduate alumni (31%) said they earned or were working on their Doctorates. Alumni with Bachelors degrees were more likely to specify a Masters degree, either a Master of Science (23%) or a Master of Public Health (19%). Twenty-one respondents specified degrees not displayed in the table. Examples include *Doctor of Science*, *Masters in Health Administration* and a *2-year degree in Nutritional Therapy*.

Table 3
Additional Degrees Earned / Additional Degrees In Process

(Base)	Undergrads (47)	Grads (35)
Masters / MS	23%	6%
Masters Public Health / MPH	19	3
Doctorate / PhD	6	31
MD	9	3
MPA	6	3
MBA	6	11
JD	4	11
DDS	2	3

Question 6: What other degrees did you earn / are you working on?

Certifications

Well over half of all respondents (54%) said they received professional certifications following their graduations.

The following respondent subgroups were more likely than others to say they have received professional certifications:

- Those with Masters of Public Health degrees (62%)
- Those earning degrees prior to 1993 (68%)
- Respondents who are currently employed in EOHS (63%)
- Those employed for 10 or more years in the field (71%)
- Respondents who work for private (60%) or public organizations (63%)
- Males (61%)
- Respondents who earn annual incomes in excess of $100,000 (77%)

Figure 2 shows that among all respondents who said had professional certifications, 36% said they were Certified Industrial Hygienists, and 25% said they were Registered Sanitarians.

Thirty percent (30%) named a wide variety of certifications not asked about. Examples of these include:

- *Certificate in Infectious Disease and Infection Control*
- *Qualified Environmental Professional*
- *Certified Professional Environmental and Safety Auditor*
- *Chemical Hygiene Officer*
- *Certified Occupational Hearing Conservationist*
- *Eurotox Registered Toxicologist*
- *Certified Asbestos Supervisor*

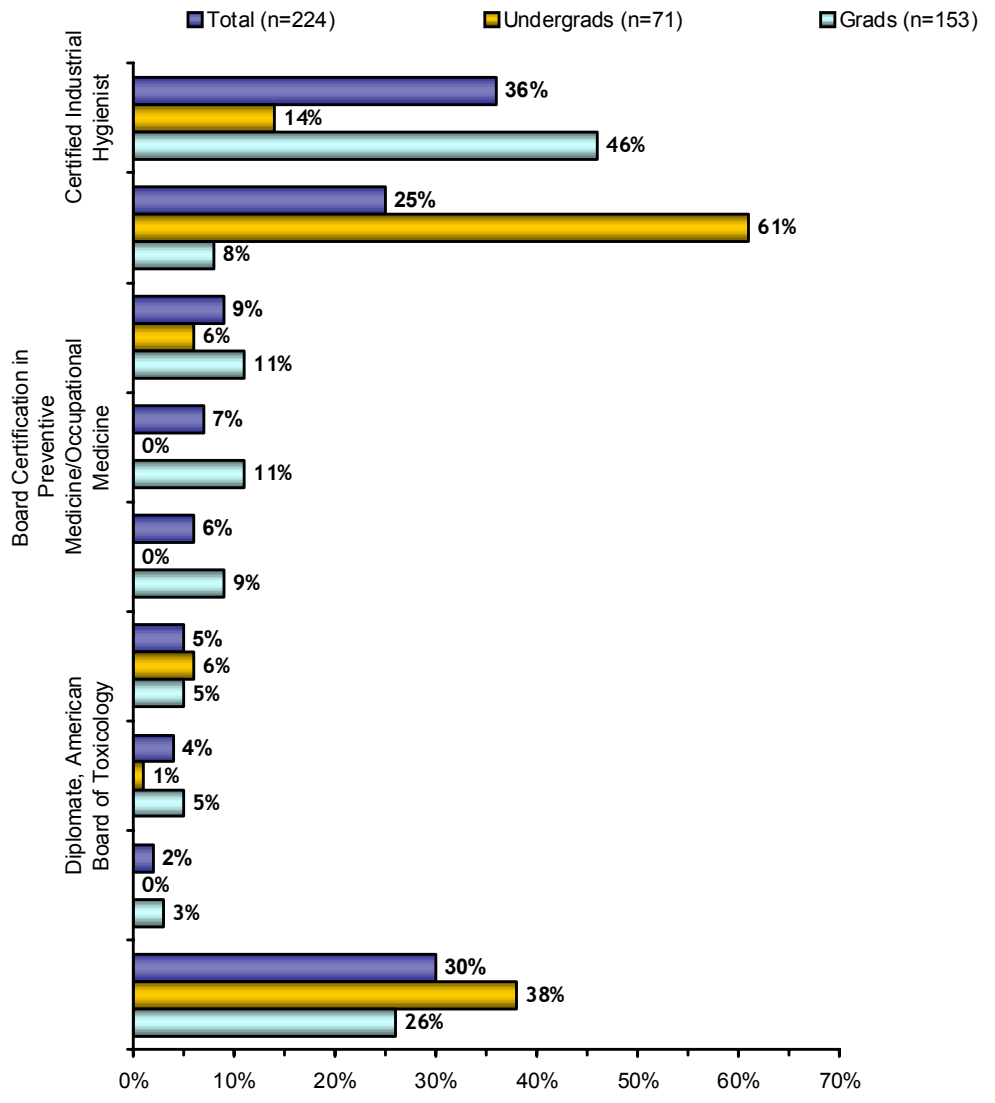
The figure also shows a breakout of certifications by level of most recent degree (Undergrad vs. Grad). Analysis found two significant differences between these subgroups.

- Alumni with advanced degrees were more likely than alumni with Bachelors degrees to say they were Certified Industrial Hygienists (46% vs. 14%).

- Respondents with Bachelors degrees were more likely to say they were Registered Sanitarians/Registered Environmental Health Specialists (61% vs. 8%).

Figure 2
Certification Programs Completed Since Graduation

(Bases shown below)



Question 10: Which, if any of the following certification programs have you completed?

Multiple response question

Employment in Environmental and Occupational Health Sciences

Among all alumni surveyed (n=416), 10% said they had never worked in a field related to Environmental and Occupational Health Sciences. Respondents with Bachelors degrees were more likely than respondents with advanced degrees to say they had never worked in the field (20% compared to 6%). It is notable that undergraduate alumni who have never worked in the field are not necessarily recent graduates: 50% of those with BS degrees who gave this response were graduates between 1965 and 1982.

Asked to give reasons why they'd not worked in EOHS, 33% (n=14) said they found no full time positions available, and an equal proportion said they were not interested in the field as a career. Some also said that the positions they found didn't pay enough or they were interested in furthering their educations (7%, or n=3, each type of response).

The remaining respondents who said they were currently employed or were at some time employed in the field (n=374) were asked a series of questions about their employment, including number of years employed, job location, compensation, occupations and specializations and whether they had supervisory duties.

Table 4 shows that overall, nearly three out of five respondents (57%) reported having worked in the field for more than 10 years, and nearly 7 out of 10 (69%) said they are/were employed in Washington State. Additionally, most respondents (60%) acknowledged earning a salary between $40,000 and $100,000.

Respondents with Bachelors degrees were more likely than those with advanced degrees to be working at jobs located in Washington State (80% compared to 65%), to be employed less than 1 year (7% vs. 1%) and to earn salaries that range between $40,000 and $75,000 (46% vs. 31%). Respondents with advanced degrees were more likely than those with Bachelors degrees to earn somewhat larger salaries ($75,000 to $100,000 – 29% compared to 14%).

Table 4
Years Employed, Location of Employment and Income

(Base)	Total (374)	Undergrads (97)	Grads (277)
Years of Employment			
Less than one year	3%	7%	1%
1 to 3 years	12	14	12
4 to 6 years	11	9	12
7 to 10 years	16	12	18
More than 10 years	57	57	57
Location			
Washington State	69%	80%	65%
California	8	7	8
Oregon	4	5	4
Alaska	1	1	1
Idaho	1	0	1
Other	17	7	21
Income			
Less than $40,000	12%	17%	10%
$40,000 up to $75.000	35	46	31
$75,000 up to $100,000	25	14	29
$100,000 up to $150,000	17	11	18
$150,000 or more	7	4	8
Don't know/Refused	5	7	4

Question 13: For how many years have you been employed / were you employed in a field related to environmental or occupational health?

Question 18: In what state are you/were you employed?

Question 20: Which of the following best represents your current salary/your salary range in (that position)?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Current Occupation/Most Recent Occupation

Respondents were asked to choose the type of job they currently hold or held most recently from a list of occupations. (Figure 3) Forty percent (40%) selected Practitioner and 30% said Manager. About one-fifth (22%) said they worked in Academia or in Research.

Respondents who graduated with degrees in Industrial Hygiene and Safety/Exposure Sciences were more likely to say they are Practitioners (51%). Those with degrees in Toxicology were more likely to say they work in Academia or Research (56%). Additional subgroup differences include:

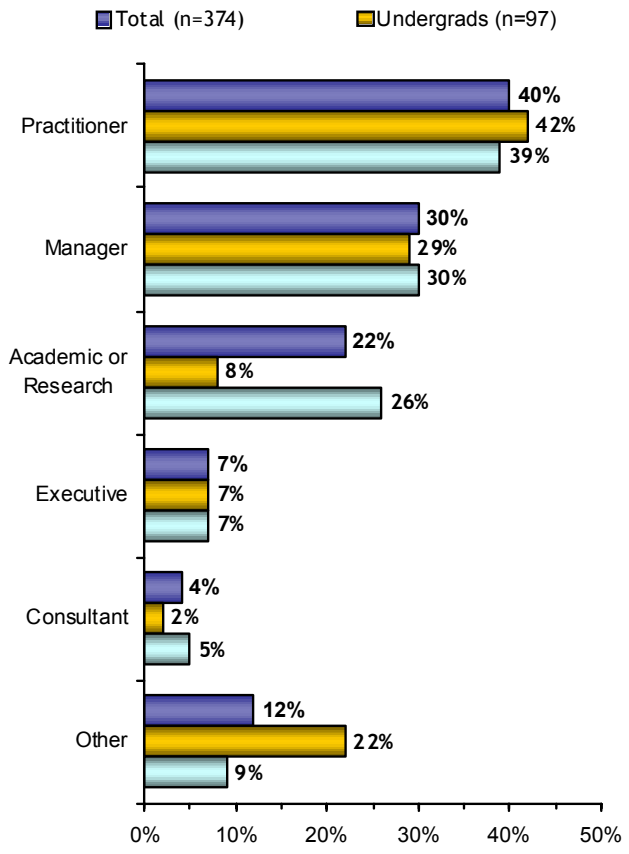
- ***Practitioners*** - Respondents who have professional certifications (48%), those who have BS degree in EOHS (42%), those who have MS degrees in EOHS (45%) and those who work in Private Organizations (45%) were more likely to say they are Practitioners.
- ***Managers*** - Those who have 10 or more years of experience in the field (37%) and those who earn annual incomes in excess of $100,000 (46%) were more likely say they are Managers.
- ***Academia or Research*** - Respondents who do *not* have professional certification (34%), who have less than 10 years of experience in the field (27%) and those who work outside Washington State (30%) were more likely to say they work in Academia or Research.
- ***Executives*** – Male respondents (10%), those who work for Private Organizations (13%) and those who earn more than $100,000 annually (20%) were more likely to say they work in an Executive function.
- ***Consultants*** – Respondents who have annual incomes of less than $75,000 (6%) and those who work for Private Organizations (7%) were more likely to say they work as Consultants.

Respondents with advanced degrees were significantly more likely than those with Bachelors degrees to say they work in Academia or Research (26% compared to 8%). Respondents with Bachelors degrees were more likely to name an occupation not asked about (22% compared to 9%). Examples of those specified include the following:

- *Safety Officer*
- *Generalist*
- *Epidemiologist*
- *Specialist*

Figure 3
Current Occupation / Most Recent Occupation

(Bases shown below)



Question 14: Thinking about your current position / most recent position in the field, which of the following terms best describe your role?

Multiple response question

Occupations shown as "Other" comprise 3% or less of total response.

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Specializations

Respondents were also read a list of occupational areas of specialization and asked to choose those that fit their current position or most recent position. (Figure 4 and Table 5)

Overall, just over one-third (34%) chose Industrial Hygiene, and at least one-quarter chose one of these areas of specialization:

- General public health protection – 27%
- Environmental assessment or management – 26%
- Workplace safety – 25%

Fewer than 10 respondents mentioned having involvement with any of these areas of specialization: General Environmental Health, Research, Educator/Trainer, Waste Management, Food Safety or Exposure Assessment. These specializations are grouped as "Other" in Figure 5.

Analysis of specializations across occupations found 47% of Consultants, 43% of Practitioners 41% of Executives and 40% of Managers working in Industrial Hygiene. Executives (41%) and Managers (33%) were also clustered in Workplace Safety jobs. Additionally, about one third of Managers (32%) said they were involved in General Public Health work.

Statistically significant differences between subgroups include the following:

- Respondents who work for Private Organizations (55%), those who graduated prior to 1993 (43%), those who have MS and MPH degrees in EOHS (49% and 42%, respectively) and graduates of the Industrial Hygiene and Safety/Exposure Sciences Program (79%) were more likely to claim Industrial Hygiene as an area of specialization.

- Those who work for Public Organizations (41%), those who work in Academia or Research (23%), graduates of the Environmental Health/Environmental Technology Program (26%), graduates of the Toxicology Program (30%) and those who have BS degrees in EOHS (49%) were more likely to say they work in General Public Health Protection.

- Respondents who have BS or MS degrees in EOHS (35% and 31%, respectively) and graduates of the Health/Environmental Technology Program (41%) were more likely to say they work in Environmental Assessment/Managements.

- Respondents who work for Private Organizations (37%), those who graduated from the Industrial Hygiene and Safety/Exposure Sciences Program (54%) and those with MS degrees in EOHS (35%) were more likely to say they are involved in the area of Workplace Safety.

- Graduates of the Toxicology Program (48%), graduates of the Environmental Health/Environmental Technology Program (26%) and respondents who said they have no professional certifications were more likely to say they work in Toxicology - Risk Assessment.

- Graduates of the Occupational or Environmental Medicine Program (73%) and those who earn annual salaries in excess of $100,000 were more likely to say they work in Occupational or Environmental Medicine (23%).

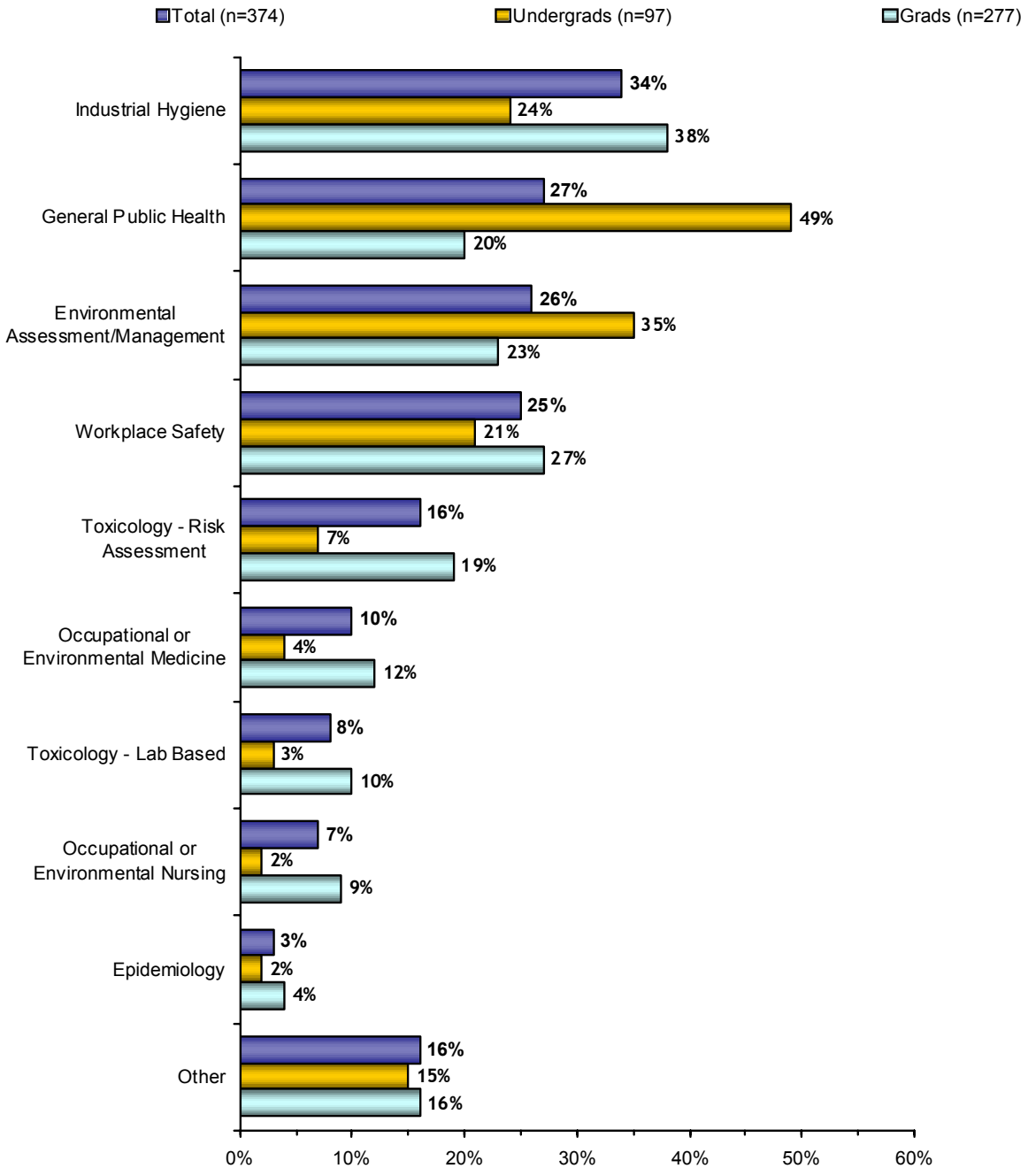
Statistically different differences between respondents with Bachelors degrees and those with advanced degrees include these:

- Graduate alumni were more likely than alumni with Bachelors degrees to be in these areas of professional specialization:
    - Industrial Hygiene (38% compared to 24%)
    - Occupational or Environmental Medicine (12% vs. 4%)
    - Toxicology – Lab Based (10% compared to 3%)
    - Occupational or Environmental Nursing (9% compared to 2%)

- Alumni with Bachelors degrees were more likely than alumni with graduate degrees to be involved in:
    - General Public Health Protection (49% compared to 20%)
    - Environmental Assessment or Management (35% vs. 23%)

Figure 4
Areas of Specialization for Current Positions / Most Recent Positions

(Base = 374)



Question 15: Which of the following are areas of specialization for your current position / most recent position in the field?

Multiple response question

Specializations shown as "Other" comprise 2% or less of total response.

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Table 5 displays specializations by type of program.

Table 5
Areas of Specialization for Current Positions / Most Recent Positions by Program of Study

	Env Health / Env Tech	Ind Hyg / Exp Sci	Tox	OEM	EOH
	(61)	(89)	(50)	(15)*	(18)*
Industrial Hygiene	33%	79%	4%	13%	28%
General Public Health Protection	26	6	30	33	33
Environmental Assessment or Management	41	18	26	7	33
Workplace Safety	15	54	6	20	22
Toxicology – Risk Assessment	26	5	48	7	33
Occupational or Environmental Medicine	10	5	4	73	6
Toxicology – Lab Based	7	1	38	13	0
Occupational or Environmental Nursing	2	0	0	0	0
Epidemiology	2	2	4	13	17
Other	21	10	18	7	17

Question 15: Which of the following are areas of specialization for your current position / most recent position in the field?

Multiple response question

Specializations shown as "Other" comprise 2% or less of total response.

*Small sample size (n<50); interpret with caution.

The number of specializations varied depending on type of respondent. (Table 6) Results found alumni with Bachelors degrees less likely than alumni with graduate degrees to have areas of specializations in their careers: 20% of undergrads indicated they had no areas of specialization.

Table 6
Number of Specialization Areas Named by Level of Degree and by Graduate Program

	BS Degrees	Env Health / Env Tech	Ind Hyg / Exp Sci	Tox	OEM	EOH
	(121)	(63)	(91)	(56)	(15)*	(18)*
Number of Specialties						
Zero	20%	3%	2%	9%	0	0
One	48	59	47	51	60	44
Two	24	22	30	18	26	33
Three	4	3	16	15	0	17
Four	2	10	3	5	7	0
Five	0	0	1	2	0	6
Six or more	2	3	0	0	7	0

Question 2A: What was the latest degree you earned from UW in the Dept. of Environmental and Occupation Health Sciences?

Question 3: In which program did you receive that degree?

Question 15: Which of the following are areas of specialization for your current position / most recent position in the field?

*Small sample size (n<50); interpret with caution.

Types of Employment

Nearly one fifth of alumni (18%) said they were *primarily* employed as Consultants – either as independent or private Consultants. Respondents who work for Private Organizations (35%), graduates of the Toxicology Program (32%) and those who work in Academia or Research (21%) were more likely to say they are primarily employed as Consultants.

A large majority of respondents (84%) said they were employed on a full-time basis. (Table 7)

Employment in Organizations

Nearly half (47%) said they were employed by a Public Agency, rather than Private Industry (36%). (Table 7) Six percent (6%) said they worked in a University setting or Academia, and 5% said they worked for a Non-Profit.

Significant differences between respondents with Bachelors degrees and respondents with advanced degrees based on organizations of employment include:

- Undergrad alumni were more likely than grads to be employed in a Public Agency (64% compared to 41%)
- Graduate alumni were more likely than undergrads to be employed in Private Industry (40% compared to 27%) and in a University setting or Academia (7% vs. 2%).

Table 7
Types of Organizations, Industries of Employment and Employment Capacity

(Base)	Total (374)	Undergrads (97)	Grads (277)
Organizations			
Public Agency	47%	64%	41%
Private Industry	36	27	40
University / Academic	6	2	7
Non-Profit	5	3	5
Government	2	1	2
Military	1	1	1
Consulting	1	0	1
Self-Employed	1	0	1
Other	2	2	2
Industries			
Government	35%	55%	29%
Education / Research	20	12	23
Manufacturing	10	7	11
Multiple Industries	10	5	12
Health Care	8	2	10
Consulting	5	5	5
Construction	2	3	1
Non-Profit	2	1	2
Utility	2	3	1
Other	7	5	8
Employment Capacity			
Full-time	84%	88%	83%
Part-time	14	11	15
Other	2	1	2

Question 16A: By what type of organization are/were you employed?

Question 17: Which of the following best describes the industry in which you are / were employed?

Question 20A: Do you work / did you work full or part time?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Significant differences based on additional subgroup classifications include these:

- Respondents who are/were employed in Washington State (53%) and those who are currently employed in the field (52%) were more likely to say they work for Public Agencies.
- Alumni who graduated prior to 1993 (44%), those who graduated from the Industrial Hygiene Program (54%), those who are not currently working in the field (53%) and those

who earn annual incomes in excess of $100,000 (53%) were more likely to say they work in Private Industry.

Employment in Industries

Asked to describe the type of industry in which they are or were employed (Table 6), over half mentioned either Government (35%) or Education/Research (20%). Ten percent (10%) said they worked in Manufacturing and 10% said they worked in multiple industries.

Significant differences between graduate and undergraduate subgroups based on industries of employment include:

- Respondents with BS degrees in EOHS were more likely than those with advanced degrees to say they work in Government (55% compared to 29%).
- Alumni with graduate degrees were more likely to say they work in Education or Research (23% vs. 12%), multiple industries (12% compared to 5%) and in Health Care (10% vs. 2%).

Significant differences based on additional subgroup classifications include these:

- Graduates of the Toxicology Program were more likely to say they work in Education/Research (36%).
- Respondents with MPH degrees were more likely to say they work in Manufacturing (20%).

Supervisory Responsibilities

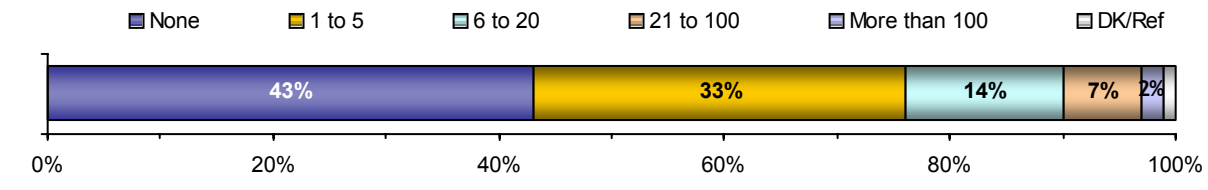
Respondents were more likely to have responsibility supervising others than not: more than half (56%) said they supervised at least one employee. (Figure 5)

Subgroups that were more likely to have significant supervisory responsibilities (supervising between 21 and 100 employees) include:

- Those who have MPH degrees (16%), those who have professional certifications (9%), those who are employed out of state (12%), those who earn more than $100,000 in annual income (17%) and those who are male (10%).

Figure 5
Number of Employees Supervised

(Base=374)

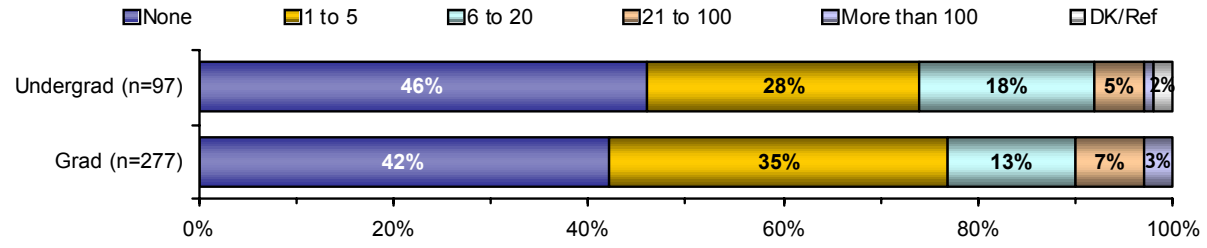


Question 19: In your current position/most recent position approximately how many people do you/did you supervise, including direct and indirect reports?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

There were no significant differences between respondents based on level of academic degree earned. (Figure 5A)

Figure 5A
Number of Employees Supervised



Question 19: In your current position/most recent position approximately how many people do you/did you supervise, including direct and indirect reports?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Overall Evaluation of Training Received and Evaluation of Program Elements

The survey asked respondents who have received their degrees within the past 15 years to provide an overall evaluation of the training that they received in their programs, and to provide evaluations for several different elements of the environmental and occupational health programs.[2] For each question, they were asked to choose a grade from these possibilities: *Excellent, Very Good, Good, Fair and Poor.*[3] Figure 6 displays results for the total group of respondents, for alumni with undergraduate degrees and for alumni with graduate degrees. Table 8 displays ratings stratified by specific program.

Overall results show that alumni gave very positive ratings for the overall training they received in their degree programs: 38% of respondents chose a score of *Excellent* and 41% gave a rating of *Very Good.*

Significant differences between subgroups:

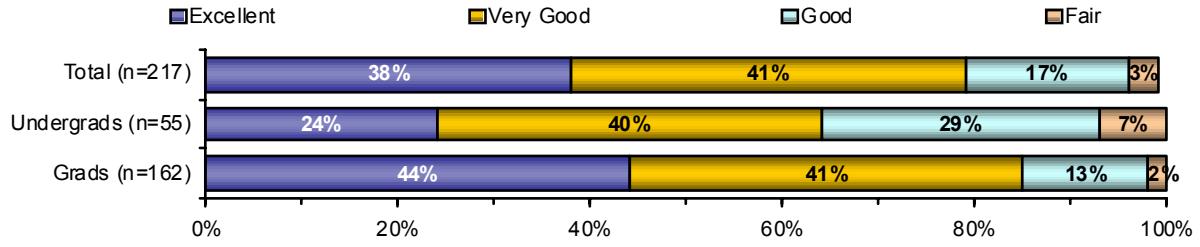
- Respondents with advanced degrees were more likely than respondents with Bachelors degrees to give ratings of *Excellent* (44% vs. 24%); those with Bachelors degrees were more likely to give a rating of *Good* (29% vs. 13%).

[2]The questions were asked of all respondents receiving degrees since 1993 – regardless of whether or not they had ever worked in the field of Environmental and Occupational Health Services.

[3]For comparative analysis of ratings, grades were then encoded from 1=*Poor* to 5=*Excellent.* This made it possible to assign a kind of mean score to each evaluation.

- Ratings of *Excellent* were more often given by respondents having professional certifications (50%), by those working in Public Agencies (48%) and by those employed out of state (48%).

Figure 6
Overall Evaluation of Training Received in Programs



Question 21: Thinking back on the experience you had while working toward your UW degree and your experience with your program, compared to your professional peers, how would you rate the training you received in the program?

Not shown: 2 respondents (1% of total) answered, *don't know*

Base includes only those respondents who received their degrees after 1992.

Table 8 displays overall ratings for training received, stratified by program type.

Table 8
Overall Evaluation of Training Received by Program of Study*

	Env Health / Env Tech	Ind Hyg / Exp Sci	Tox	OEM	EOH
	(29)	**(41)**	**(47)**	**(11)**	**(11)**
Excellent	62%	30%	34%	82%	27%
Very Good	35	48	45	18	64
Good	3	20	17	0	9
Fair	0	3	4	0	0

Question 21: Thinking back on the experience you had while working toward your UW degree and your experience with your program, compared to your professional peers, how would you rate the training you received in the program?

*Small sample sizes (n<50) warrant cautious interpretation of results.

Base includes only those respondents who received their degrees after 1992.

Asked to provide reasons for their ratings, 39% of respondents overall said the training provided what they needed for their careers and 24% overall said they received a well-rounded education. Nearly one out of five (18%) commented about knowledgeable faculty and 15% mentioned challenging coursework.

There were few disparities in comments provided by respondents with Bachelors degrees and by those with advanced degrees. (Table 9) However, alumni with graduate degrees were more likely to say they found the coursework *challenging* and *robust* (17% compared to 7%).

Few negative comments were heard, but those that were expressed had to do with training that lacked relevancy to the real world of work.

Table 9
Explanations for Grades Assigned to Overall Training

(Base)	Undergrads (55)	Grads (162)
Good/excellent training for my career / I was taught what I need to know for my career	33%	41%
Well-rounded, broad-spectrum education	26	24
Instructors were knowledgeable, qualified, competent	11	20
Coursework was challenging, robust	7	17
Not quite as relevant to my field as I would have liked	15	13
Top quality education / high standards	6	10
Not as challenging as I would have liked	11	7
Needed more hands-on, real life experiences	2	6
Other	20	6
Don't know/Refused	2	1

Question 22: Why do you say that?

Evaluation of Specific Program Elements

Respondents who have recent knowledge of their programs (having graduated within the past 15 years) were asked to grade 11 specific aspects of their training, choosing grades of *Excellent, Very Good, Good, Fair or Poor*. Figure 7 displays the ratings given by all respondents. Figure 7A displays side-by-side results for alumni with undergraduate degrees and those with graduate degrees. Table 10 presents mean scores for the 11 elements, stratified by program type.

Figure 7 (Total Results) shows that at least half of all respondents gave top grades (combined *Excellent/Very Good* ratings) to all 11 elements. The greatest proportion of top grades was given for Level of Student Funding Support (73%). Preparation for Certification gathered the smallest share of top ratings (50%).

Non-response (*does not apply, don't know* and *response refusals*) ranged from 1% to 29%. Smaller shares of positive ratings for Internships and Practicum (51%) and Preparation for Certification (50%) reflect to some degree, large levels of non-response associated with these program elements: the proportion of non-response for Internships and Practicum was 26%. For Preparation for Certification, non-response was 29%. Despite this, both of these elements also gathered the largest shares of low (*Fair/Poor*) ratings: 23% and 20%, respectively.

Using a computed mean score to compare ratings by subgroup, the following significant differences were noted between respondent subgroups:

- ***Level of Student Funding Support***: - Higher mean scores were given by those who are currently employed in the field (4.18), by those who have MS degrees in EOHS (4.48) and by those who work out of state (4.35).

- ***Access to Faculty*** – These groups gave higher mean scores for Access to Faculty than others: those who are currently employed in the field (4.03), those who work out of state (4.20) and respondents who have professional certification (4.16).

- ***Classroom Instruction*** - Respondents who are currently employed in the field (3.96), EOHS graduates (3.86) and those who have MS degrees in EOHS (3.93) gave higher mean scores for Classroom Instruction than others.

- ***Relevancy to Your Professional Needs*** - Higher mean scores were given by those who are currently employed in the field (3.98), by respondents who have professional certification (4.02), by those who work out of state (4.06) and by those who are employed by Public Organizations (4.09).

- ***Faculty Advising and Mentorship*** - Respondents who are currently employed in the field (3.85) and those who have professional certifications (3.97) gave Faculty Advising and Mentorship higher mean scores.

- ***Research Mentorship*** - Those who work out of state (3.92), respondents who are currently employed in the field (3.77) and those who have MS degrees in EOHS (3.58) gave higher mean scores for Research Mentorship.

- ***Facilities*** - Respondents who are currently employed in the field (3.64), those who work for Public Organizations (3.83) and those who work out of state (3.73) gave higher mean scores for Facilities.

- ***Access to Cutting Edge Instrumentation*** – Respondents who have MS degrees in EOHS (3.57) and those who work out of state (3.87) gave this aspect of their programs higher mean scores than others.

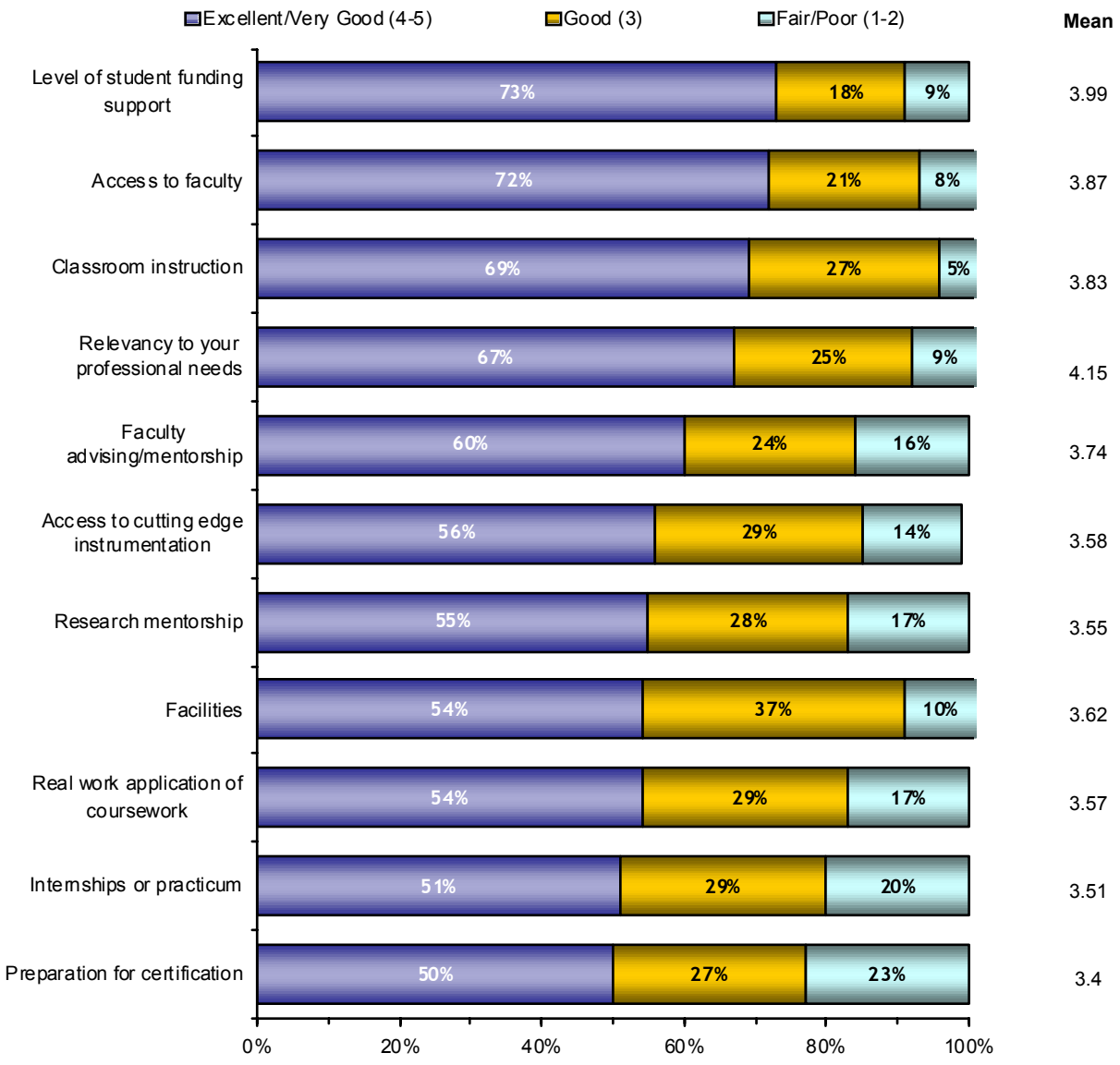
- ***Opportunity for Real World Application*** - Higher mean scores were given by those who are currently employed in the field (3.71), by those who have BS degrees in EOHS (3.57) and by respondents who have professional certification (3.76).

- ***Internships or Practicum*** - Respondents who have professional certification (3.75), those who have BS degrees in EOHS (3.49) and those who have MS degrees in EOHS (3.63) gave Internships or Practicum higher mean scores than others.

- ***Preparation for Certification*** – This element of the programs was rated higher by these groups than others: those who are currently employed in the field (3.56), respondents who have professional certification (3.80) and those who are employed by Public Organizations (3.67).

Figure 7
Evaluation of Specific Program Elements

Respondents Who Have Received Degrees Within the Past 15 Years



Questions 23A through 23K: Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each.

For comparative analysis of ratings, grades were encoded from 1=*Poor* to 5=*Excellent*. This made it possible to compute a mean score for each program element.

The number of respondents who failed to answer (*don't know, not applicable*, refused to respond) varied by question. Bases ranged from n=156 to n=219.

May not sum to 100% due to rounding.

Comparison of Undergrad and Grad Alumni Ratings

Figure 7A displays ratings for respondents with Bachelors degrees and ratings for respondents with advanced degrees. A comparison of mean ratings found generally higher scores given by alumni with graduate degrees than alumni with undergraduate degrees. Shares of "top box" ratings (*Excellent/Very Good*) were also higher for grads for nearly all elements.

Significantly higher mean scores were given by graduate alumni than undergraduate alumni for these specific program elements:

- ***Research Mentorship*** – Grads (3.76); Undergrads (3.11)
- ***Access to Cutting-Edge Instrumentation*** – Grads (3.73); Undergrads (3.17)
- ***Level of Student Funding Support*** – Grads (4.45); Undergrads (2.83)

Figure 7A
Evaluation of Specific Program Elements
(Figure continued on following page)

Respondents Who Have Received Degrees Within the Past 15 Years

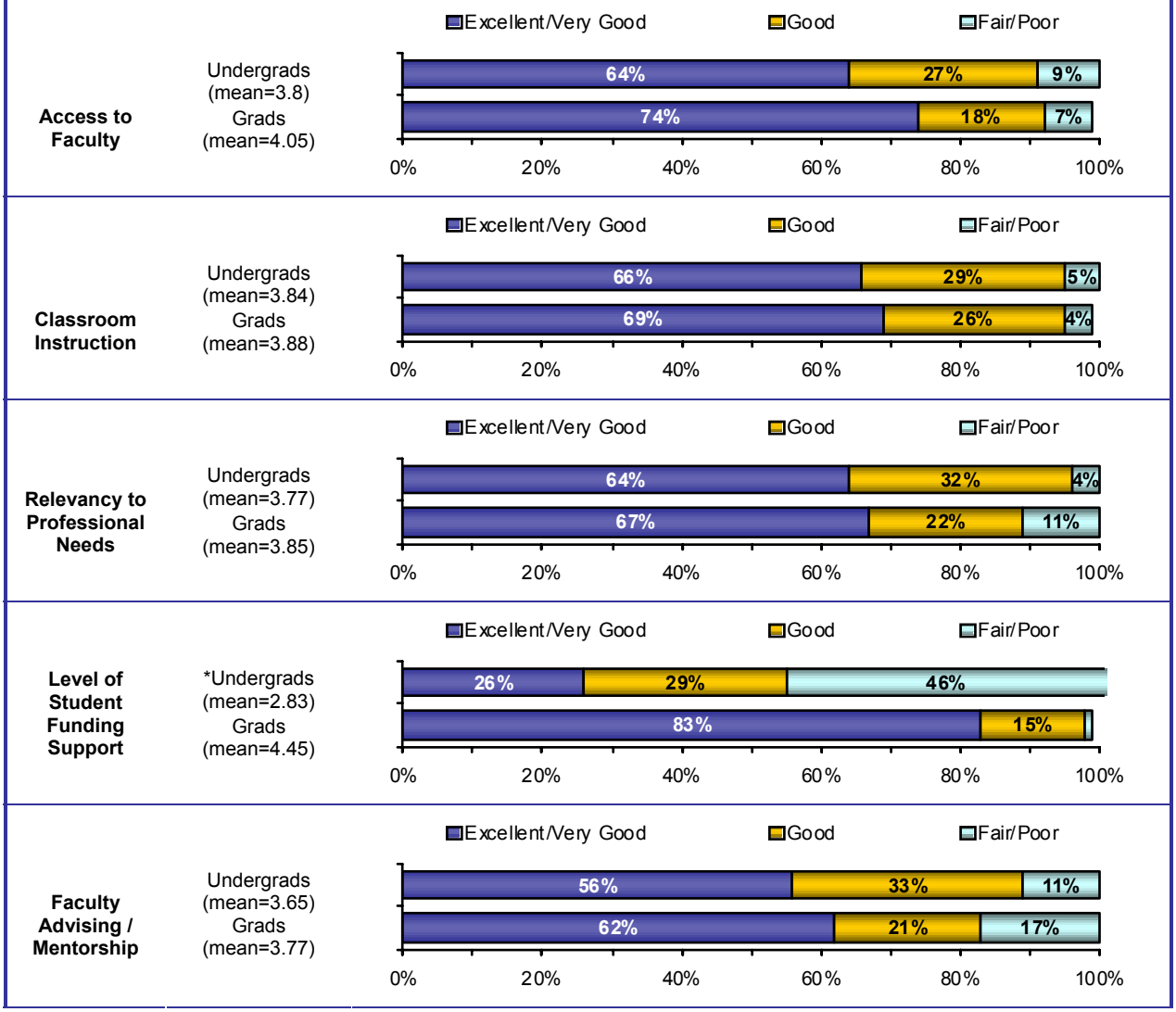


Figure 7A (continued)
Evaluation of Specific Program Elements

Respondents Who Have Received Degrees Within the Past 15 Years

Questions 23A through 23K: Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each.

For comparative analysis of ratings, grades were encoded from 1=*Poor* to 5=*Excellent*. This made it possible to compute a mean score for each program element.

The number of respondents who failed to answer (*don't know, not applicable*, refused to respond) varied by question. Bases for Undergrads ranged from n=35 to n=56. Bases for Grads ranged from n=108 to n=163.

*Small sample size (n<50); interpret with caution.

May not sum to 100% due to rounding.

Table 10 presents mean scores for the 11 elements, stratified by program type. It shows significantly higher mean scores given by respondents who graduated from the Occupational and Environmental Medicine Program than by respondents who graduated from other programs for these five items:

- ***Access to Faculty*** – 4.64
- ***Classroom Instruction*** – 4.45
- ***Relevancy to Professional Needs*** – 4.73
- ***Research Mentorship*** – 4.45
- ***Preparation for Certification*** – 4.1

Additionally, alumni of the Environmental and Occupational Health Program gave a significantly higher mean score for Level of Student Funding Support (5.0) than alumni of other programs.

Table 10
Evaluation of Specific Program Elements – Mean Scores by Program of Study

Respondents Who Have Received Degrees Within the Past 15 Years

	Env Health / Env Tech	Ind Hyg / Exp Sci	Tox	OEM	EOH
Level of Student Funding Support	4.61	4.5	4.11	4.1	**5.0**
Access to Faculty	3.86	3.9	4.04	**4.64**	4.18
Classroom Instruction	3.86	3.95	3.62	**4.45**	3.91
Relevancy to Your Professional Needs	3.9	3.65	3.57	**4.73**	3.91
Faculty Advising / Mentorship	3.21	3.73	3.64	4.36	3.91
Access to Cutting Edge Instrumentation	3.69	3.5	3.87	4.5	3.88
Research Mentorship	3.54	3.66	3.72	**4.45**	3.91
Facilities	3.59	3.68	3.68	3.91	3.45
Real Work Application of Coursework	3.69	3.51	3.09	4.2	3.73
Internships or Practicum	3.61	3.71	2.58	3.67	3.89
Preparation for Certification	3.68	3.22	3.05	**4.1**	3.25

Evaluation of Specific Non-Technical Elements

Using the same grading system, respondents having recent knowledge of their programs were asked to evaluate six additional non-technical aspects of their programs. Overall results are displayed in Figure 8. Results for undergrads and grads are displayed in Figure 8A and Table 11 presents mean scores for the six elements, stratified by program type.

Between about one fifth (22%) and one half of respondents (51%) gave top grades (combined *Excellent/Very Good* ratings) to non-technical aspects of the programs. Teamwork Skills and Experience gathered the largest proportion of *Excellent/Very Good* ratings (51%), while Job and Employment Placement Support gathered the smallest share (22%).

The rate of non-response (*does not apply, don't know* and *response refusals*) ranged from 1% to 15%, and was greatest for the element, Job and Employment Placement Support (15%).

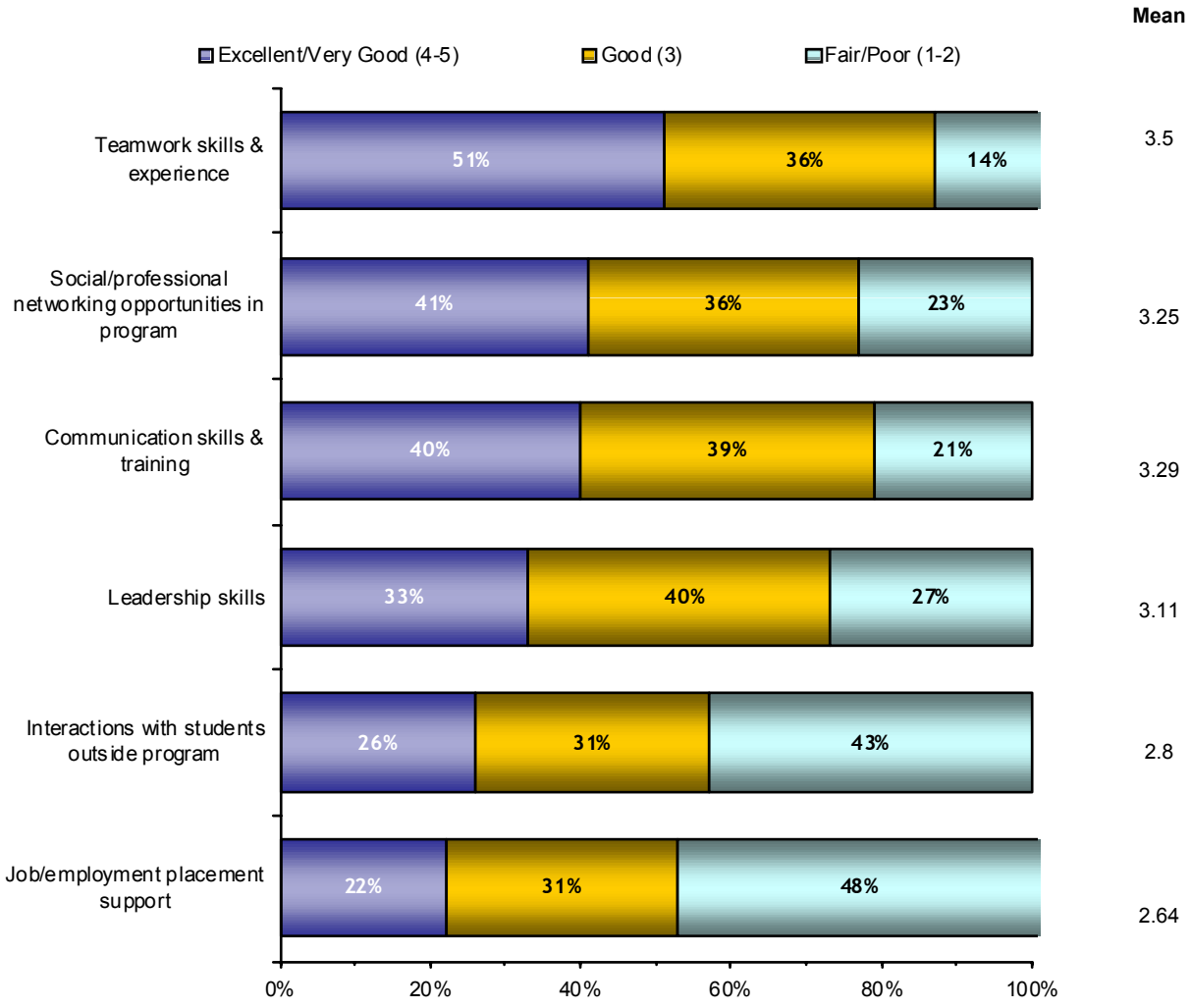
Respondents gave large shares of low grades (combined *Fair/Poor* ratings) to Interactions with Students Outside of Your Program Area and Job and Employment Placement Support (43% and 48%, respectively). Other non-technical aspects gathered between one seventh and one quarter of respondents' low grades: Teamwork Skills and Experience (14% said *Fair/Poor*), Communication Skills and Training (21%), Social and Professional Networking Opportunities in the Program (23%) and Leadership Skills (27%).

Ratings for these non-technical aspects of the program provide some opportunities for positive change. In three specific areas, at least 5% of alumni gave particularly negative ratings (ratings of *Poor*). These were Job and Employment Placement Support (17% said *Poor*), Interactions with Students Outside Your Program Area (11%) and Leadership Skills (5%).

Respondents who are currently employed in the field gave all non-technical aspects of the programs higher mean scores than others. Those who have professional certifications gave higher mean scores for all non-technical aspects of the programs *except* for two: Social and Professional Networking Opportunities and Job and Employment Placement Support. And respondents who completed surveys by telephone gave a higher mean grade for Leadership Skills than those who completed the survey online.

Figure 8
Evaluation of Specific Non-Technical Program Elements

Respondents Who Have Received Degrees Within the Past 15 Years



Questions 24A through 24D: Now, considering non-technical aspects of the programs, and using the same ratings, how would you rate your degree program in terms of ….

Question 25: How would you describe the social and professional networking opportunities available to students while in your program at UW?

Question 26: How would you describe the job and employment placement support available to students in your program at UW?

For comparative analysis of ratings, grades were encoded from 1=*Poor* to 5=*Excellent*. This made it possible to compute a mean score for each program element.

The number of respondents who failed to answer (*don't know, not applicable*, refused to respond) varied by question. Bases ranged from n=186 to n=217.

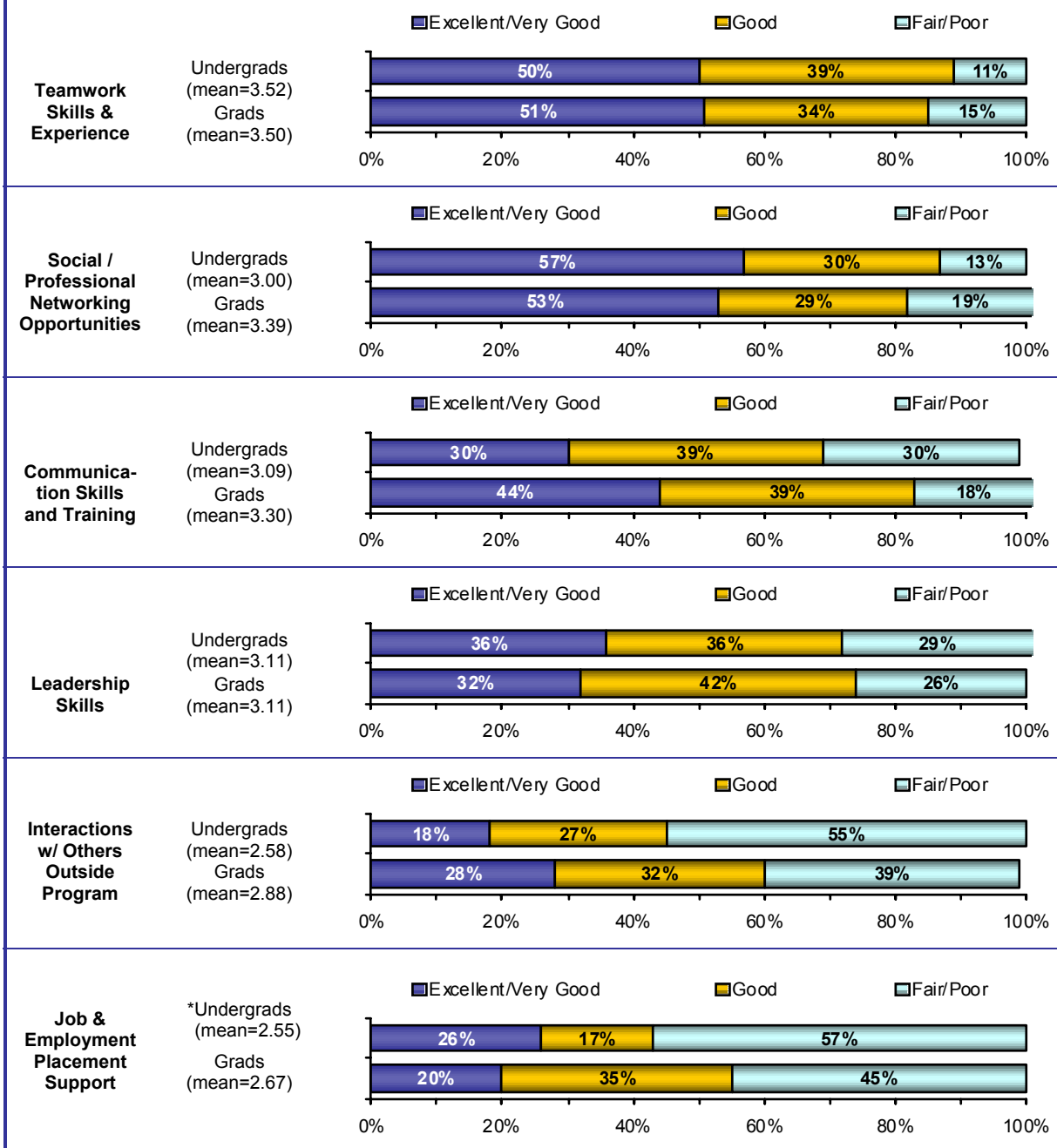
May not sum to 100% due to rounding.

Comparison of Undergrad and Grad Alumni Ratings

Figure 8A displays ratings for respondents with Bachelors degrees and ratings for respondents with advanced degrees. A comparison of mean ratings found undergrads and grads in close agreement on two of the non-technical aspects of the programs: Teamwork Skills and Experience (means=3.52 and 3.5, respectively) and Leadership Skills (means=3.11 for both groups).

Graduate alumni gave higher mean ratings than undergraduates for each of the four remaining elements, and one of these ratings was significantly higher: Social and Professional Networking Opportunities Available (mean for grads=3.39; mean for undergrads=3.00). It is notable that another of the four remaining items, Communication Skills and Training, received a significantly larger proportion of *Very Good* ratings from grads (34% compared to 20%, not shown in the graph) and a significantly smaller proportion of *Fair* ratings from undergrads (29% compared to 14%, also not shown).

Figure 8A
Evaluation of Specific Non-Technical Program Elements
Respondents Who Have Received Degrees Within the Past 15 Years



Questions 24A through 24D: Now, considering non-technical aspects of the programs, and using the same ratings, how would you rate your degree program in terms of ….

Question 25: How would you describe the social and professional networking opportunities available to students while in your program at UW?

Question 26: How would you describe the job and employment placement support available to students in your program at UW?

For comparative analysis of ratings, grades were encoded from 1=*Poor* to 5=*Excellent*. This made it possible to compute a mean score for each program element.

*Small sample size (n<50); interpret with caution

The number of respondents who failed to answer (*don't know, not applicable*, refused to respond) varied by question. Bases for Undergrads ranged from n=47 to n=56. Bases for grads ranged from n=139 to n=161.

May not sum to 100% due to rounding.

Table 11 presents mean scores for the 6 elements, stratified by program type. It again shows significantly higher mean scores given by respondents who graduated from the Occupational and Environmental Medicine Program than by respondents who graduated from other programs for several items. These are:

- *Social and Professional Networking Opportunities* – 4.11
- *Communication Skills and Training* – 4.0
- *Leadership Skills* – 3.8
- *Interactions with Others Outside Your Program* – 3.82
- *Job and Employment Placement Support* – 3.5

Table 11
Evaluation of Specific Non-Technical Program Elements – Mean Scores by Program of Study

Respondents Who Have Received Degrees Within the Past 15 Years

	Env Health / Env Tech	Ind Hyg / Exp Sci	Tox	OEM	EOH
Teamwork Skills and Experience	3.34	3.44	3.31	3.9	3.36
Social and Professional Networking Opportunities	3.14	3.08	3.32	**4.11**	**3.64**
Communication Skills and Training	3.14	3.12	3.17	**4.0**	3.27
Leadership Skills	2.9	2.86	2.93	**3.8**	3.09
Interactions with Others Outside Your Program	3.04	2.53	2.6	**3.82**	2.82
Job and Employment Placement Support	2.42	2.74	2.61	**3.5**	2.78

Continuing Education

Experience with Outside Curricula

Alumni who have advanced degrees and who earned those degrees within the past 15 years were asked whether they had taken coursework outside the curricula that was offered in their graduate programs.

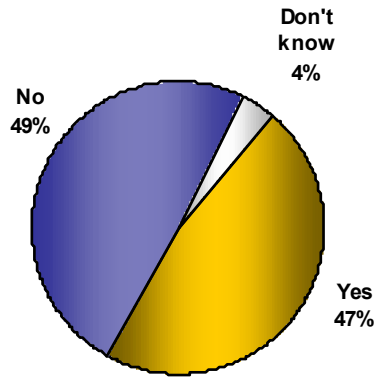
As Figure 9 shows, respondents were about equally divided in having experience with outside coursework.

Subgroups more likely to have taken coursework outside their curricula include:

- Graduates earning degrees between 2001 and 2008 (59%)
- Those who said they have never been employed in an EOHS position (85%)
- Respondents who have no professional certifications (55%)
- Those who work for Public Organizations (49%)

Figure 9
Experience with Coursework Outside the Graduate Curricula

(Base = 163)



Question 27: In your graduate program, did you enroll in classes outside your curriculum?

Base: Respondents who have advanced degrees earned within the past 15 years.

Respondents were asked to choose from a list that they were read, the most valuable subject areas in which they had taken outside coursework. Respondents more often said the Hard Sciences (29%, or n=22) than Policy or Law (16%, n=12) Business (8%, n=6), multiple courses (6%, n=5) and Engineering (5%, n=4).

Experience with EOHS Continuing Education

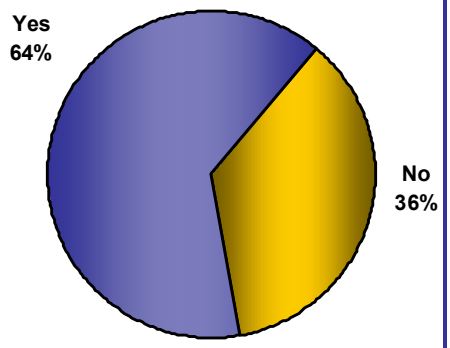
Nearly two-thirds (64%) of respondents said they have taken environmental and occupational health sciences continuing education coursework within the past 10 years. (Figure 10)

These respondents were more likely than others to say they have taken continuing education coursework since they received their degrees:

- Those who are currently employed in EOHS (74%)
- Respondents who have professional certifications (80%)
- Alumni who have been employed for 10 years or longer (83%)
- Respondents who have degrees in Exposure Sciences
- Those who work for Public Organizations (70%)
- Alumni who graduated from the Industrial Hygiene and Safety/Exposure Sciences Program (76%)

Figure 10
Experience with EOHS Continuing Education Coursework

(Base = 374)



Question 29: Since receiving your degree, have you taken any types of continuing education course in environmental and occupational health in the past ten years?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

There were no significant differences in experience with continuing education coursework between respondents with Bachelors degrees and the larger group of respondents with advanced degrees. (Figures 10A and 10B)

Figure 10A
Experience with EOHS Continuing Education Coursework Among Undergrad Alumni

(Base = 97)

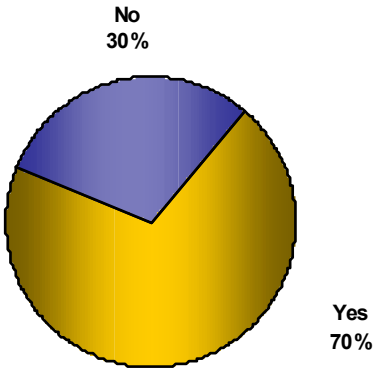
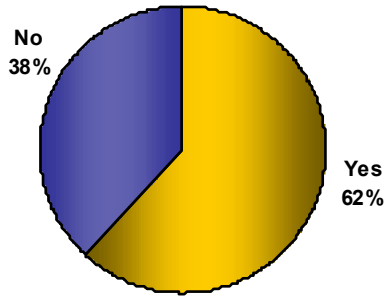


Figure 10B
Experience with EOHS Continuing Education Coursework Among Grad Alumni

(Base = 277)



Question 29: Since receiving your degree, have you taken any types of continuing education course in environmental and occupational health in the past ten years?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field

Continuing Education Providers

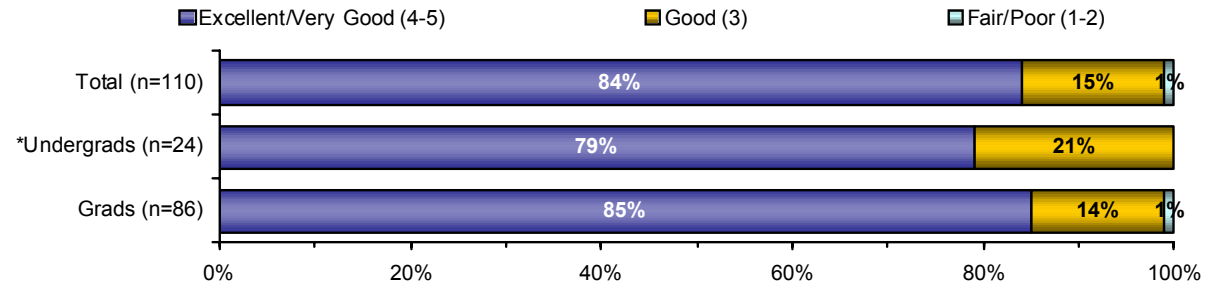
Asked where they received the instruction, 80% said through professional associations, 56% named private vendors, 52% said the University of Washington, 36% said at other universities and 5% specified government or state agencies.

Those who named the University of Washington as the provider were further asked to choose from a list, the types of courses they had taken. Selecting from these options – in person or classroom, online video and online interactive, 90% chose in person or classroom. Seven percent (n=8) selected online interactive.

Figure 11 shows the evaluations given for in person or in the classroom continuing education courses. It shows that a very large majority of respondents rated the coursework positively, giving a grade of *Excellent* (30%) or *Very Good* (54%). There were no differences between the ratings given by undergrads and ratings given by alumni with advanced degrees.

Figure 11
Evaluation of In Person or Classroom Courses in DEOHS Continuing Education at UW

(Base=110)



Question 32A: Overall, how would you rate the quality of in-person or classroom courses from UW DEOHS? Would you say …?

*Small sample size (n<50); interpret with caution

Base includes respondents who have taken in person or classroom courses in DEOHS continuing education at UW

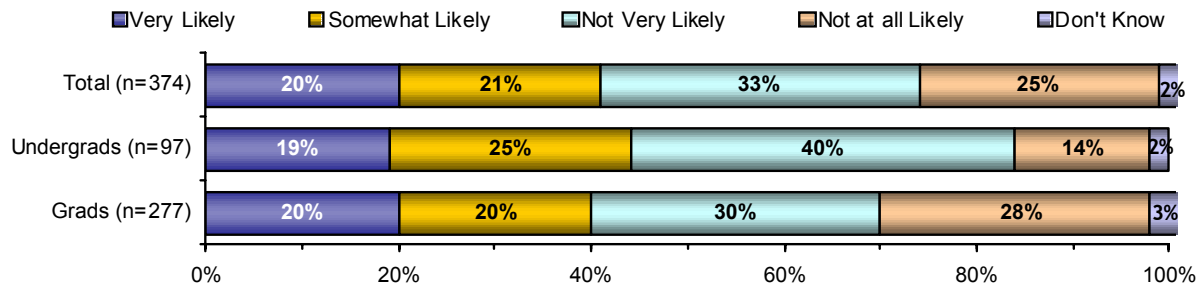
Alumni who said they have taken online video (n=3) and online interactive (n=8) courses at UW were also asked to give evaluations for these courses. Of the three respondents who took online video courses, two graded the courses, *Excellent* and one graded the course, *Good*. Of the eight respondents who took online interactive courses, two gave ratings of *Excellent*, two gave ratings of *Very Good*, one person said, *Good*, and one said *Poor*. Two respondents did not provide a rating (*don't know*).

Likely to Take DEOHS Continuing Education at UW in Next Five Years

Survey results found a good share of interest in taking continuing education courses from the UW Department of Environmental and Occupational Health Sciences in the next five years. (Figure 12) One out of five alumni who are involved in the field said they would be *Very Likely* (20%), and an approximately equal proportion (21%) said they would be *Somewhat Likely* to take continuing education coursework. Two percent said they were undecided.

Figure 12
Likely to Take DEOHS Continuing Ed in Next 5 Years

(Base=374)



Question 33: How likely is it that you will consider taking continuing education courses from the UW Department of Environmental and Occupational Health Sciences in the next five years?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Subgroups that said they would be *Somewhat/Very Likely* to take CE courses include respondents who are employed in Washington State, those who have BS degrees or MS degrees in EOHS, those who are currently employed in EOHS and those who graduated from the Industrial Hygiene and Safety/Exposure Sciences Program. Alumni with graduate degrees were more likely than alumni with undergraduate degrees to say they would be *Not at All Likely* to take continuing education coursework (28% vs. 14%).

Forms of Continuing Education Most Likely to Pursue

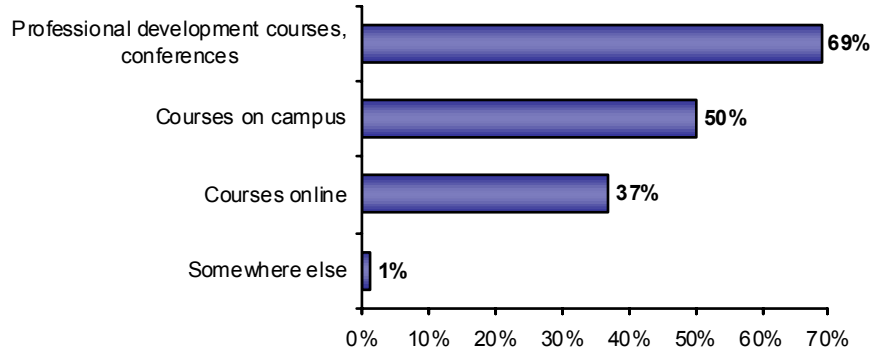
Respondents who would be likely to take CE courses indicated that they would be most interested in taking professional development courses (69%), followed by courses offered on campus (50%). They also showed strong interest in taking coursework online (37%). (Figure 13)

Those more likely than others to take professional development courses include respondents who are currently working in the field, those who have professional certifications, respondents having at least 10 years of work experience in the field and those who earned their degrees prior to the year 1993.

Respondents who are more likely than others to take continuing education classes on campus include respondents who earn incomes between $75,000 and $100,000, those who completed the survey online and those who earned their degrees between the years 2001 and 2008.

Figure 13
Forms of DEOHS Continuing Education Most Likely to Pursue

(Base = 151)



Question 34: What form of continuing education courses will you be most likely to take from the UW Department of Environmental and Occupation Health Sciences in the next five years?

Base includes only those respondents who would be *Very Likely/Somewhat Likely* to take CE courses from the DEOHS in the next 5 years.

Multiple response question

These subgroups were more likely to say they would be interested in taking DEOHS coursework online: those not currently working in EOHS positions, those who have less than 10 years of work experience, respondents who earn less than $75,000 in annual income, those who completed the survey online and respondents who earned their degrees between the years 2001 and 2008.

Application of Global Environmental and Health Sciences

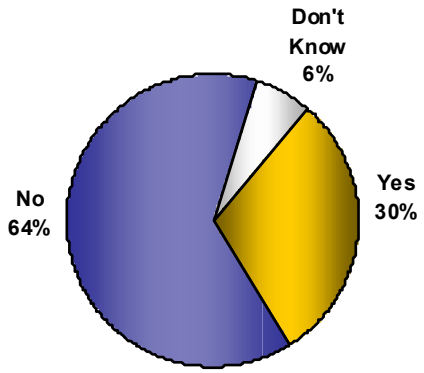
Alumni having work experience in the field were asked whether their practices encompass global environmental or occupational health and safety. Three out of ten (30%) answered *yes*. (Figure 14)

Subgroups more likely than others to answer *yes* include:

- Respondents who are currently employed in the EOHS field (34%)
- Those who have at least 10 years of work experience in the field (34%)
- Respondents employed by Private Organizations (35%)
- Those who earn annual incomes in excess of $100,000 (43%)

Figure 14
Application of Global EOHS

(Base = 374)



Question 35: Does your practice encompass global environmental or occupational health and safety?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Although alumni with advanced degrees more often said their practices encompass global environmental or occupational health and safety (32% vs. 24%), they were not significantly more likely than undergrad alumni to answer *yes*. (Figures 14A & 14B)

Figure 14A
Application of Global EOHS Among Undergrad Alumni

(Base = 97)

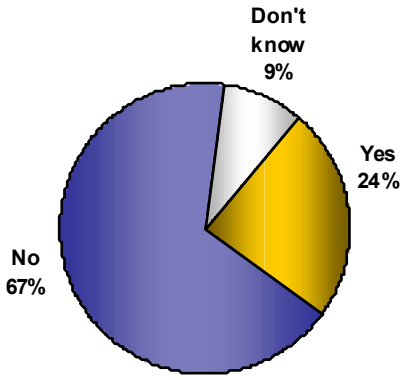
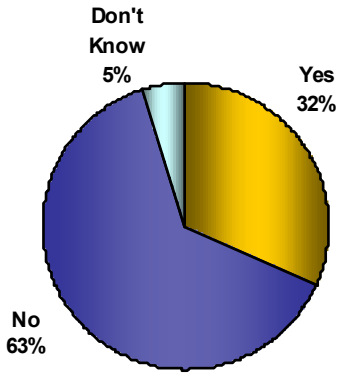


Figure 14B
Application of Global EOHS Among Grad Alumni

(Base = 277)



Question 35: Does your practice encompass global environmental or occupational health and safety?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field

Table 12 displays the extent to which respondents' practices encompass global application of environmental or occupational health and safety, stratified by program of study.

Table 12
Application of Global EOHS by Program of Study

	Env Health / Env Tech	Ind Hyg / Exp Sci	Tox	OEM	EOH
	(61)	(89)	(50)	(15)*	(18)*
Yes	31%	34%	34%	27%	22%
No	62	63	60	67	78
Don't Know	7	3	6	7	0

Question 35: Does your practice encompass global environmental or occupational health and safety?

*Small sample size (n<50). Interpret results with caution.

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field

Respondents whose practices apply global environmental or occupational health and safety were asked to describe the nature of their global work. Table 13 shows that more than one quarter (27%) said they were involved with occupational health issues connected to the workplace, 23% talked about their efforts in environmental clean-up - specifically hazardous materials handling, pollution and water quality, and 14% said they provided consulting and technical assistance.

Table 13
Nature of Global Work Performed

(Base)	Total (111)	Undergrads (23)*	Grads (88)
Occupational health: working conditions, exposure to workplace hazards	27%	17%	30%
Environmental clean-up: hazardous materials, pollution, water quality	23	26	22
Consulting, technical assistance	14	13	15
Education, seminars, classes	11	4	13
Public health issues: disease, epidemiology	10	4	11
Climate change issues and concerns	5	9	5
Other	27	17	30
Don't know / Not applicable	5	17	2

Question 35A: Briefly describe the nature of your global work.

Responses shown as "Other" include comments gathering less than 5% of total response (5 or fewer comments).

*Small sample size (n<50); interpret with caution.

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field, and whose practices encompass global EOHS.

Respondents who provided non-coded remarks (those not listed in Table 8) offered a wide array of comments. Examples include:

I'm an EHS executive for a $13 billion company with 140 factories and 44,000 employees. We're part of a $50 billion global corporation.

The division I support has a large percentage of its workforce based outside of the U.S. I conduct research and implement programs throughout the world.

… post-war health concerns ...

I work with suppliers and joint ventures and subsidiaries. They are global.

I research questions that are not specific geographically, like mercury exposure safety of dental amalgam.

… emergency response in global settings...

I participate in a research grant abroad.

We work in Canada food safety concerns.

Drug development for the global market …We have to satisfy the regulatory interests of countries we do business with.

… international ergonomics standards …

The survey additionally asked respondents what the UW Environmental and Occupational Health Program could do to better prepare students to work globally. (Table 14)

A large proportion (43%) said the program should offer more classes or coursework on related global issues – for example, offer a Global Health Program or Global Health Education focused on other places around the world. About one fifth (19%) said it should offer internships, international exchange opportunities and placement assistance.

Table 14
Suggestions for Program Changes to Better Prepare Students to Work Globally

(Base)	Total (111)	Undergrads (23)*	Grads (88)
Offer more classes, coursework on related global issues / Global Health Program / Global Health Education focused on other places	43%	30%	46%
Offer internships, exchange opportunities and placement assistance	19	17	19
More hands-on, real-world opportunities	8	4	9
Other	25	30	24
Don't know / Not applicable	18	26	16

Question 36: What could the UW Environmental and Occupational Health program do to better prepare students to work globally?

Responses shown as "Other" include comments that gathered 3% or less of total response (3 or fewer comments).

*Small sample size (n<50); interpret with caution.

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field, and whose practices encompass global EOHS.

Examples of comments not coded (not displayed in Table 14) include these:

Perhaps there should be a course about the differences between US regulations and international regulations (EU vs. OSHA) or seminars on relevant ISOs.

Don't neglect an understanding of vaccines and their role.

Try to expose students to all topics related to EOHS – provide links to articles, research ideas, new technologies.

Partner more with engineering programs and international programs.

I think connect them more directly with what's going on in the legislature… what's going on with green jobs, the green economy.

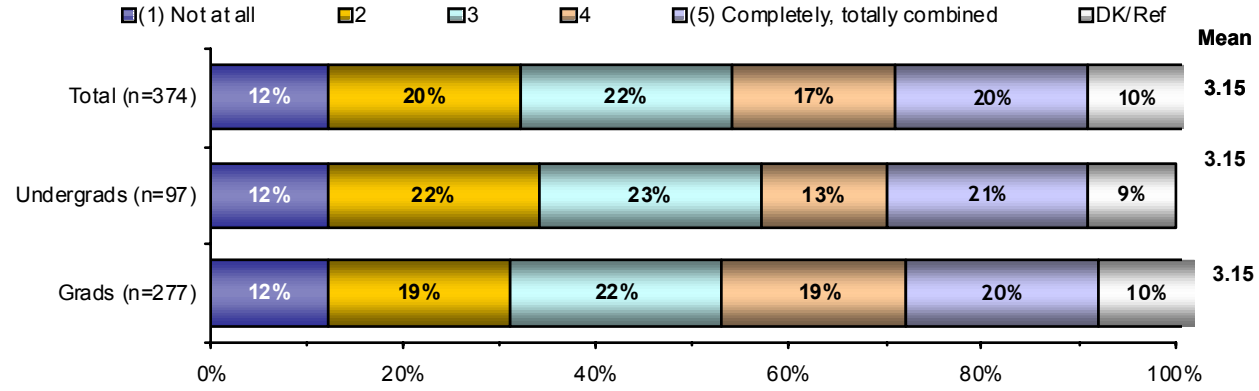
Influence of Environmental and Occupational Health Issues in the Current Workplace

Respondents were divided in their assessments of how much their practices encompass occupational health and the broader environment. Figure 15 shows that on the scale of measure from *no commonality* between the two (a rank of "1") to *total commonality* (a rank of "5"), respondents gave a mean score nearly right in the middle of the scale (3.15). It is notable that a sizeable proportion (10%) was unable to assign a rank, and many respondents (22%) chose a middle ranking ("3").

A comparison of scaled and mean ratings for undergrads and grads found the groups in close agreement about how much their practices bridge the field of EOHS and the broader environment.

Figure 15
Extent to Which Practice Bridges Occupational Health Sciences and Broader Environment

(Base=374)



Question 38: To what extent does practice in your field encompass a combination of occupational health and the broader environment? Please use a scale from 1 to 5 where 1 means not at all - these are two distinct areas of practice and 5 means completely – they are totally combined.

Bases include only those respondents currently or previously employed in an Environmental or Occupational Health field.

- These subgroups were more likely than others to give a scale ranking of 4 or 5 (indicating that their practices combine occupational health and the broader environment):
    - Those who graduated from the Industrial Hygiene and Safety/Exposure Sciences Program (45%)
    - Respondents who are currently employed in the EOHS field (40%)
    - Those who have ten or more years of work experience in the field (43%)
- Subgroups that were more likely than others to give a scale ranking of 1 or 2 (indicating their practices do not combine occupational health and the broader environment) include:
    - Respondents who work for Public Organizations (34%) and those who work in Academia or Research (42%)

- Respondents who graduated from the Environmental Health/Environmental Technology Program (38%) and those who graduated from the Toxicology Program (42%)

Table 15 displays the extent to which respondents' practices encompass global application of environmental or occupational health and safety, stratified by program of study. A comparison of mean scores shows Toxicology alumni less likely than alumni of other programs to work in practices that combine occupational health sciences and the broader environment (mean=2.68).

Table 15
Extent to Which Practice Bridges Occupational Health Sciences and Broader Environment
By Program of Study

	Env Health / Env Tech	Ind Hyg / Exp Sci	Tox	OEM	EOH
	(61)	**(89)**	**(50)**	**(15)***	**(18)***
1 = Not at all	18	7	16	7	6
2	20	16	26	13	6
3	12	26	24	20	39
4	16	21	14	27	22
5 = Completely, totally combined	21	24	8	27	28
Don't Know / Refused	13	7	12	7	0
Mean	*3.04*	*3.42*	*2.68*	*3.57*	*3.61*

Question 38: To what extent does practice in your field encompass a combination of occupational health and the broader environment? Please use a scale from 1 to 5 where 1 means not at all - these are two distinct areas of practice and 5 means completely – they are totally combined.

*Small sample size (n<50); interpret with caution.

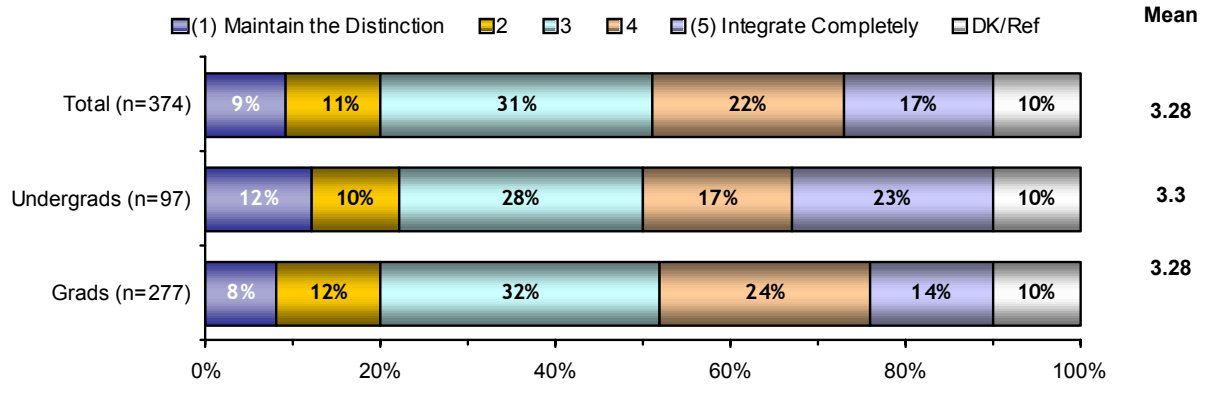
Bases include only those respondents currently or previously employed in an Environmental or Occupational Health field.

When they were asked how academic training should deal with the distinction between the two areas (Figure 16), respondents were somewhat more likely to favor having academic training integrate the two areas (overall 39% gave a scale ranking of 4 or 5), than maintain a distinction between the two (20% gave a scale ranking of 1 or 2). However, many respondents were again unable to assign a rank (10% said *don't know*), and many chose a mid-scale rating of "3" (31%).

Respondents who graduated from the Industrial Hygiene and Safety/Exposure Sciences Program were more likely than others to favor integration of the two (44% gave a scale ranking of 4 or 5).

Although results show a stronger tendency on the part of undergrads than grads to support complete integration of the two in a teaching approach (23% vs. 14% said *completely, totally combined*), the results were not statistically significant. Mean scores were about the same for the two groups.

Figure 16
Extent to Which Academic Training Should Maintain the Distinction or Completely Integrate Occupational Health and the Broader Environment



Question 39: Should academic training maintain the distinction between these two areas or integrate them completely? Please use a scale from 1 to 5 where 1 means maintain the distinction and 5 means integrate them completely.

Bases include only those respondents currently or previously employed in an Environmental or Occupational Health field.

Table 16 displays opinion about how academic training should approach the synthesis of occupational health and the broader environment, stratified by program of study.

Table 16
Extent to Which Academic Training Should Maintain the Distinction or Completely Integrate Occupational Health and the Broader Environment by Program of Study

	Env Health / Env Tech	Ind Hyg / Exp Sci	Tox	OEM	EOH
	(61)	**(89)**	**(50)**	**(15)***	**(18)***
1 = Maintain the distinction	13	8	10	0	0
2	13	11	12	20	22
3	34	26	38	40	28
4	21	25	18	13	28
5 = Integrate them completely	8	19	8	27	22
Don't Know / Refused	10	11	14	0	0
Mean	*2.98*	*3.41*	*3.02*	*3.47*	*3.5*

Question 39: Should academic training maintain the distinction between these two areas or integrate them completely? Please use a scale from 1 to 5 where 1 means maintain the distinction and 5 means integrate them completely.

*Small sample size (n<50); interpret with caution.

Bases include only those respondents currently or previously employed in an Environmental or Occupational Health field.

Perception of Personal Impact on EOH

A large majority of alumni (80%) said they felt they had made a positive impact on the environment, worker health and safety and general population health and safety in their careers. (Figure 17) This proportion includes those who said they felt they had made an extremely positive impact (16%).

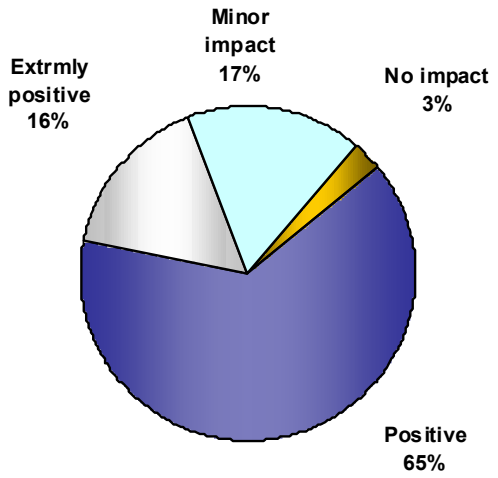
Respondents who earned their degrees prior to the year 1992 and those who have more than 10 years working in EOHS were more likely than others to say they felt they have made an extremely positive impact (18% and 20%, respectively).

Several subgroups were more likely than others to estimate their personal impact as *minor*:

- Those who have no professional certifications (24%)
- Those who have less than 10 years of work experience in the field (24%)
- Respondents who earn an annual salary of less than $75,000 (21%)

Figure 17
Perception of Personal Impact on Environmental and Occupational Health

(Base = 368)



Question 40: How would you describe the impact you feel you have had on the environment, worker and general population health and safety?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field. Base excludes those who gave no opinion (6 respondents said *don't know*)

Perceptions of personal impact were similar for alumni with undergraduate degrees and for alumni with advanced degrees.

Figure 17A
Perception of Personal Impact on Environmental and Occupational Health Among Undergrad Alumni

(Base = 96)

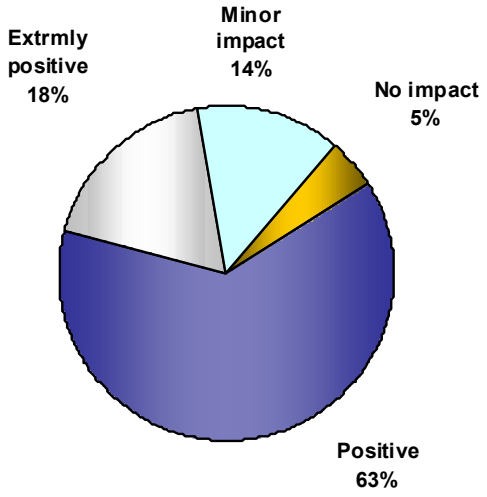
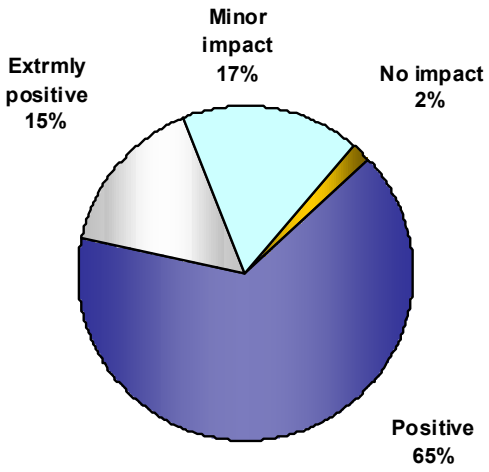


Figure 17B
Perception of Personal Impact on Environmental and Occupational Health Among Grad Alumni

(Base = 272)



Question 40: How would you describe the impact you feel you have had on the environment, worker and general population health and safety?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field. Base excludes those who gave no opinion (1 undergrad respondent and 5 grad respondents said *don't know*)

Most Significant Occupational Challenges

Respondents often named compliance with new regulations, guidelines and standards as significant occupational challenge (17%). (Table 17) Although they were asked not to consider internal politics or personal issues, including budget issues, many also named politics, personal or budget issues (14%). One out of ten (10%) mentioned the slow economy or loss of positions in the industry and 9% said keeping up with changes and advancements in technology.

Table 17
Most Significant Occupational Challenges

(Base)	Total (374)	Undergrads (97)	Grads (277)
Safety issues: new regulations, guidelines, standards – compliance	17%	21%	16%
None – only politics, personal or budget issues	14	11	16
Slow economy/lack of job opportunities	10	11	9
Keeping up with advancements in technology	9	9	9
Workload issues/not enough people to get work done	8	6	8
Burnout, low employee motivation	7	4	8
Lack of public awareness, education about health, environment and safety issues	7	8	7
Lack of trained personnel	6	11	4
Training	5	9	4
Better recognition for employees	5	2	5
Communication, cultural issues between employees	4	3	4
Other	12	8	13
Don't know/Not Applicable/Refused	19	21	18

Question 41: Aside from internal politics or personal issues including budget issues, what are the most significant challenges you are facing in your occupation today?

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Examples of comments that gathered less than 4% of total response (those shown as "Other" comments) include the following:

- *Chemical policy reform; replacing TCSA with a policy that advocates for the human environment.*
- *Convincing companies to make changes in exposure control.*
- *Defining the role for academic occupational medicine; separating practice from litigation issues.*
- *Management buy-in and accepting responsibility for EHS issues.*
- *Managing an occupational health perspective within a business environment.*
- *Directing project work to areas that make a real difference in public health. There's a lot of environmental work in the field of hazardous waste that takes a lot of effort and work and money but produces very little benefit.*

- *Public policy because it is ultimately where the decisions are made; science has very little to do with how decisions are made.*
- *Regulatory politics. Different people interpret regulations differently. Regulations are not uniformly enforced.*

There one significant difference between the proportion of challenges named by alumni with undergraduate degrees and those named by alumni with advanced degrees: undergraduate alumni were more likely to mention a lack of trained people to do the work (11% compared to 4%).

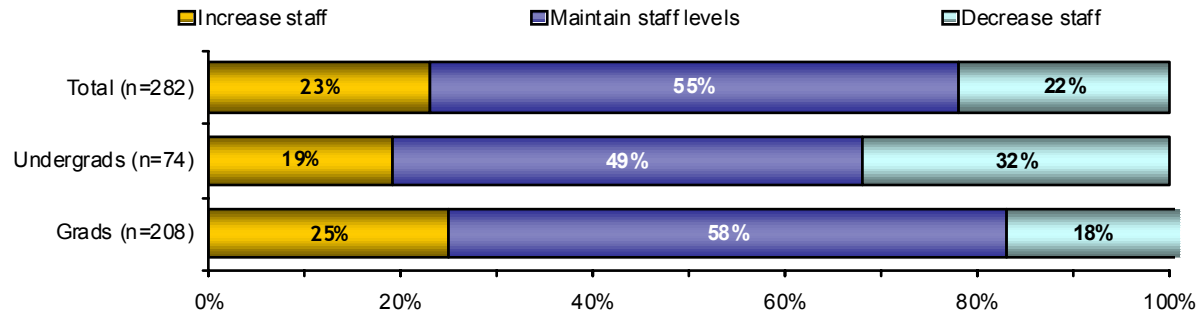
Staffing Expectations in the Next Five Years

A large majority of respondents were fairly optimistic about their organizational employment or staffing expectations in the next five years: over three quarters said they thought their companies would either maintain staff levels (55%), or increase staff (23%). (Figure 18) About one out of five(16%) said they thought there would be decreases in staff levels. Alumni with Bachelors degrees were significantly more likely than alumni with advanced degrees to say they expect a decrease in staffing in the next 5 years (32% vs. 18%).

Respondents who were more likely than others to say they expect staff levels will be increased were those who are currently employed in the field (23%) and those who have more than ten years of work experience (49%). Respondents who were more likely than others to say they expect staff levels will be decreased include those who work in the Public sector (21%), those who earn less than $75,000 annually (20%) and those who have BS degrees (25%) or MS degrees (18%) in EOHS.

Figure 18
Organizational Employment / Staffing Expectations in the Next Five Years

(Base=374)



Question 42: What employment or staffing expectations in the occupational and environmental health field does your organization have for the next five years? Will you …

Bases include only those respondents currently or previously employed in an Environmental or Occupational Health field. Respondents who gave no opinion (*don't know*, response refusals) are excluded from displayed results. Overall, 92 respondents failed to answer, including 23 undergraduates and 69 graduates.

Suggestions for Program Changes Needed to Prepare for Future Work in the Field

Alumni provided a large array of suggestions for updating NWCOHS and DOEHS programs to prepare future graduates for their careers. (Table 18)

About one out of six respondents (17%) said programs should offer more exposure to work in the field, specifying a need for real world experiences (10%), internship-externship programs (4%) or hands-on involvement (3%). Nine percent (9%) said training should incorporate management and business aspects into the curriculum and an equal proportion (9%) said there should be training or mentoring provided for students.

Table 18
Suggestions for Updating NWCOHS and DEOHS Programs to Prepare for Future Career Needs

(Base)	Total (374)	Undergrads (97)	Grads (277)
Provide more real world experiences	10%	7%	11%
Incorporate management, business aspects into curriculum	9	8	9
Provide training/mentoring for students	9	8	9
More effort to provide a global perspective	8	8	7
Keep current on events	7	9	6
Safety issues/workplace issues	6	4	7
More information about employees' health/wellness/disease management	6	2	7
Better integration between environmental and occupational health and safety	5	5	5
Internship/externship programs	4	4	4
Better understanding of government regulations	4	1	5
More hands-on involvement	3	0	4
Emphasize communication skills, leadership	3	4	3
Update information about technological changes	3	6	2
Good/No change needed	3	5	2
Other	32	42	29
Don't know/Not applicable/Refused	22	20	22

Question 43: How should the degree program you completed change or adapt to better fulfill the future needs of the field of environmental and occupational health?

Responses shown as "Other" include comments gathering 2% or less of total response (9 or fewer comments).

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Respondents often provided additional comments that were too few in number to combine into unique categories for display. Examples of these "other" comments include the following:

- *Identify key partners that are well-aligned with core EH principles and who bring additional insights and resources to traditional EH.*
- *Ensure staff and faculty retention; allow faculty growth in programs where it is needed. Continue to provide graduate student funding.*
- *Recruitment, recruitment, recruitment … get the word out to high school and college students about this exciting, rewarding and challenging field.*
- *Ensure that there is a clear connection between research, curricula and practice.*

- *Provide more emphasis on helping students prepare for professional certification.*

- *I think there should be more of an emphasis on dealing with clients using the scientific material learned in class. Make a problem set and address it.*

- *Closely partner with local, state and federal agencies to adapt the program to current and future needs.*

Respondents with advanced degrees were more likely than those with Bachelors degrees to say their programs should incorporate information about employee health and disease management (7% vs. 2%). Graduate alumni were also more likely to say there should be more information given about government regulations (5% compared to 1%).

More recent alumni (those graduating from 2001 onward) were more likely to say there should be additional training or mentoring provided to students (16%, compared to 5% of mentions among alumni graduating prior to 1993). Respondents who work for public agencies were also more likely to specify that there should be additional training or mentoring (10%).

Areas of Study Needed for Future Occupational or Environmental Health Issues

Respondents were asked to indicate from a list of study areas those which should be incorporated into academic training for future environmental or occupational health issues. (Figure 19 and Table 19)

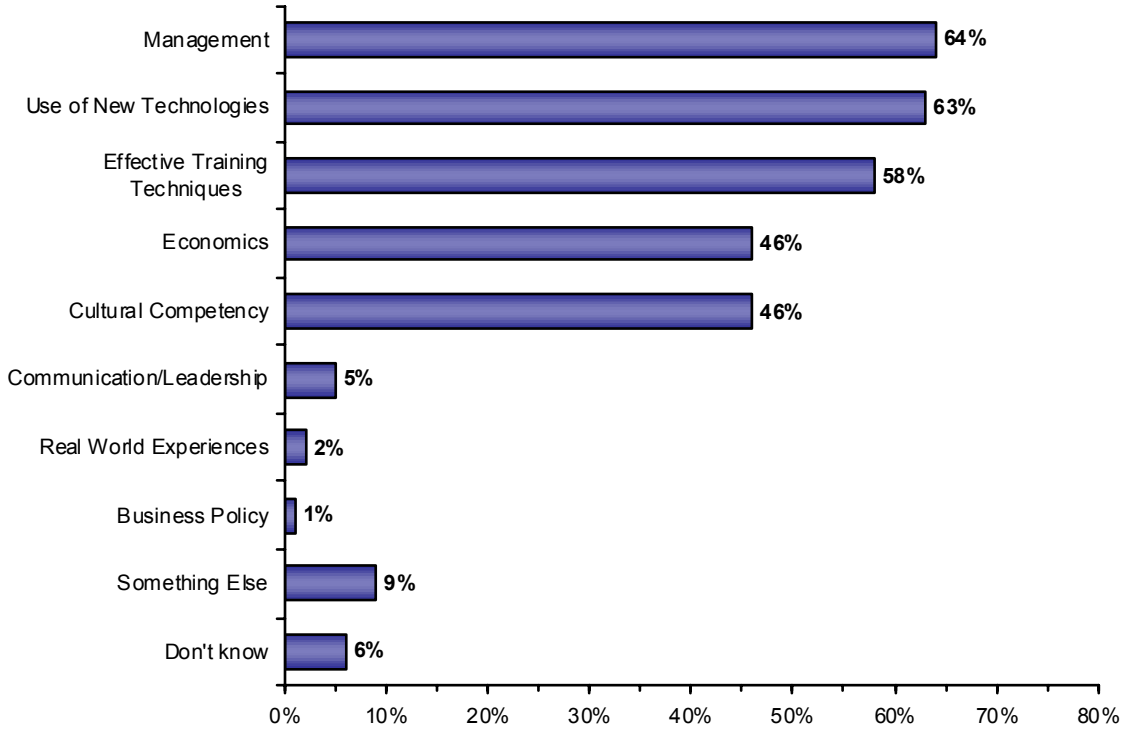
About two-thirds said Management (64%) and Use of New Technologies (63%), and nearly three out of five (58%) said Effective Training Techniques. Nearly half indicated a need for Economics coursework (46%) and studies in Cultural Competency (46%).

Nine percent (9%) said "Something Else." Interviewers were instructed to probe remarks of this nature to determine what respondents had in mind. Examples include the following comments:

> (There should be) *public health training to prepare grads for possible work in disaster response and/or emergency management. Even though many grads may never deal with crises, our nation really needs lots of trained professionals who can be pressed into service to deal with public health emergencies. Imagine a Katrina scenario coupled with a dirty bomb.*
>
> *None of these strikes as something that "should be incorporated." the needs of students vary, depending upon their career goals. Offering a joint degree program, flexibility to take course in these areas as an elective, etc., would be a better way to meet the needs.*
>
> *Surviving office environments where you swim instead of sink in a work culture that seems straight out of junior high. Also, putting more focus on the multidisciplinary nature of environmental health, and in turn, the myriad of jobs your degree can apply to. … The more real, live graduates you can provide as mentors or examples for current students … the better.*

Figure 19
Areas of Study Needed for Future Environmental or Occupational Health Issues

(Base = 374)



Question 37: Which of the following are areas of study should be incorporated in academic training for future environmental or occupational health issues?

Multiple response question

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Table 19
Areas of Study Needed for Future Environmental or Occupational Health Issues by Program of Study

	Env Health / Env Tech	Ind Hyg / Exp Sci	Tox	OEM	EOH
	(61)	(89)	(50)	(15)*	(18)*
Management	69%	72%	48%	67%	67%
Use of new technologies	66	64	48	47	67
Effective training techniques	57	66	30	60	72
Economics	46	38	34	47	67
Cultural competency	48	39	40	60	39
Communication / leadership	8	6	4	0	6
Real world experiences	5	1	4	0	0
Business / policy	0	0	0	0	0
Something else	8	8	8	13	6
Don't know / Refused	8	9	12	0	0

Question 37: Which of the following are areas of study should be incorporated in academic training for future environmental or occupational health issues?

*Small sample size (n<50); interpret with caution.

Multiple response question

Base includes only those respondents currently or previously employed in an Environmental or Occupational Health field.

Doctor of Nursing Practice Degree Program

The final portion of the survey asked alumni of the University of Washington Occupational Health Nursing Program a series of questions about the Doctor of Nursing Practice Degree.

Respondents were asked to evaluate six statements that they were read and to indicate their level of agreement or disagreement with the statements. They were instructed to use a 5-point scale with the number 1 indicating strong disagreement and the number 5 indicating strong agreement. Results of their ratings are displayed in Figure 20.

In general, the figure shows a split of opinion about all the statements, with especially large proportions of respondents indicating they were unsure about a rating (these respondents answered *don't know*, or refused to answer, and are not shown in the graphic). The rate of non-response (don't know, response refusal) ranged from 5% (n=2) to 30% (n=13). Additionally, sizeable segments of respondents indicated they neither agreed nor disagreed with four statements (giving a neutral rating of "3"):

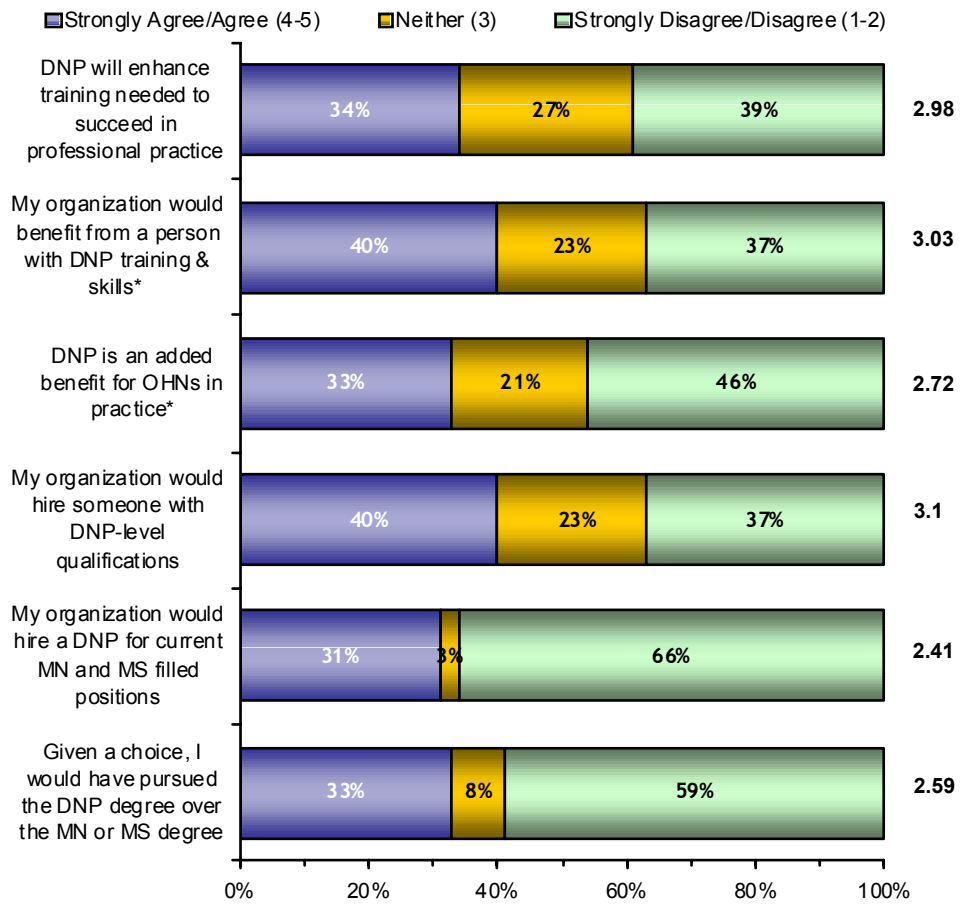
- The DNP will enhance training needed to succeed in professional practice (27% gave a neutral rating of "3").
- My organization would benefit from a person with DNP training and skills (23%).
- My organization would hire someone with DNP-level qualifications (23%).
- DNP is an added benefit for OHNs in practice (21%).

Agreement was weakest for two statements:

- My organization would hire a DNP for positions currently held by employees with MN and MS degrees (31% *Agree/Agree Strongly*; 66% *Disagree/Disagree Strongly*).
- Given a choice I would have pursued the DNP degree over the MN or MS degree (33% *Agree/Agree Strongly*; 59% *Disagree/Disagree Strongly*).

Figure 20
Doctor of Nursing Practice Degree Agree/Disagree Statements

Respondents Who Have Graduated from the Occupational Health Nursing Program**



Questions 45A through 45F: Please indicate if you agree or disagree with each of the following statements about the new DNP degree. Please use a 5-point scale with 1 meaning strongly disagree and 5 meaning strongly agree.

*Original statement was phrased negatively. Both the statement and the scale have been reversed to display results in a format comparable to others in the graph.

**Small sample size (n<50); interpret with caution

The number of respondents who failed to answer (*don't know, not applicable*, refused to respond) varied by question. Bases ranged from n=30 to n=41.

APPENDIX

13: **INTRO**

IF NOT AVAILABLE, ARRANGE CALL-BACK

(Good morning)/(afternoon)/(evening), ASK TO SPEAK WITH <CONT> My name is _____ and I work for Gilmore Research Group, an opinion research firm headquartered here in Seattle. Tonight we are calling alumni on behalf of the University of Washington to conduct an important survey related to the environmental and occupational health programs. You should have received a letter from Noah Seixas (pronounced: SAY-SHUS) from the department about this survey.

IF NEEDED: This alumni survey is being sponsored by The Department of Environmental and Occupational Health Sciences (DEOHS) and the Northwest Center for Occupational Health and Safety at the University of Washington to determine how well programs are satisfying stakeholder needs, providing students what they need to succeed in their careers and foreseeing the future needs of the environmental and occupational health fields. As a graduate of DEOHS, the Occupational Health Nursing Program, or the Health Services Research Training Program, your feedback is critical to help understand where the program is being successful and how it might be modified or improved.

$N

Continue ..... 91 => /LASTQ

14: **Q1A**

Could I please confirm that you graduated from the Department of Environmental and Occupational Health Sciences at the University of Washington?

=> +2

si NOT TYPE=1

Yes 1
No 2
Don't know/Refused 3

16: **Q1B**

Could I please confirm that you graduated from the Occupational Health Nursing Program at the University of Washington?

=> +2

si NOT TYPE=2

Yes 1
No 2
Don't know/Refused 3

18: **Q1C**

Could I please confirm that you graduated from the Health Services Research Training Program at the University of Washington?

=> +2

si NOT TYPE=3

Yes 1
No 2
Don't know/Refused 3

20: **Q2A**

PROBE TO FIT

What was the latest degree you earned from UW in the Dept of Environmental and Occupational Health Sciences?

=> +1

si NOT TYPE=1

Bachelor of Science/BS	01	
Masters/MS	02	
Masters Public Health/MPH	03	
Doctorate/PhD	04	
Masters of Science in Public Health / MSPH	05	N
Other (SPECIFY:)	97	O
Don't know/Refused	99	

21: **Q2B**

PROBE TO FIT

What was the latest degree you earned from UW School of Nursing?

=> +1

si NOT TYPE=2

MN - (Masters of Nursing)	01	
MS - Nursing	02	
PhD - Nursing	03	
Other (SPECIFY:)	97	O
Don't know/Refused	99	

22: **Q3**

PROBE TO FIT

In which program did you receive that degree?

=> +1

si Q2A=01 OR TYPE=2,3

Environmental Health/Environmental Technology	01	
Industrial Hygiene and Safety/Exposure sciences	02	
Toxicology	03	
Occupational and Environmental Medicine	04	
Environmental and Occupational Health	05	
Occupational Health Nursing	06	
Health Services	07	N
Other (SPECIFY:)	97	O
Don't know/Refused	99	

23: **Q4A**

Can I confirm that you received your degree in <year>?

=> +1

si YEAR<1

Yes	1
No	2
Don't know/Refused	3

24: **Q4B**

In what year did you receive that degree?

$E 1900 2009

=> +1

si Q4A=1,3

Don't know/Refused 9999

25: **Q5**

Did you go on to earn any other degrees after that one?

Yes 1
Currently working on degree 4
No 2
Don't know/Refused 3

27: **Q6**

PROBE TO FIT

< What other degrees did you earn? / What degree are you currently working on?>

=> Q9

si NOT Q5=1,4

Bachelor of Science/BS 01
Masters/MS 02
Masters Public Health/MPH 03
Doctorate/PhD 04
MD 05
DDS 06
JD 07
MBA ..... 08 N
Masters of Public Administration ..... 09 N
Other (SPECIFY:) ..... 97 O
Don't know/Refused 99

29: **Q7**

<Was that degree / Is that degree> in a field related to Environmental or Occupational Health?

Yes 1
No 2
Don't know/Refused 3

31: **Q8**

<From what university did you earn that degree / What university will you be earning that degree from >?

University of Washington/UW ..... 01 N
Seattle University/SU ..... 02 N
Johns Hopkins ..... 03 N
Yale University ..... 04 N
University of Hawaii ..... 05 N
University of Puget Sound ..... 06 N
RECORD COMMENTS ..... 97 O
Don't know/Refused ..... 99 X

32: **Q9**

Have you received professional certification of any kind since receiving your degree?

Yes 1
No 2
Don't know/Refused 3

33: **Q10**

READ 1-97. UP TO 8 RESPONSES

Which, if any, of the following certification programs have you completed?

=> Q11
si NOT Q9=1

CIH (Certified Industrial Hygienist) 01
DABT (Diplomate, American Board of Toxicology) 02
Board Certification in Preventive Medicine/Occupational Medicine) .. 03
COHN-S (Certified Occupational Health Nurse Specialist) 04
CHMM (Certified Hazardous Materials Manager) 05
CSP (Certified Safety Professional) 06
Nurse Practitioner ..... 08 N
RS/REHS (Registered Sanitarian/Registered Environmental Health Specialist) 07
Or some other program (SPECIFY:) ..... 97 O
Don't know/Refused - DO NOT READ ..... 99 X

34: **Q11**

PROBE TO FIT

Are you currently employed in a field related to environmental or occupational health?

Yes 01
Temporarily on leave or temporary out of the field 02
No, employed in other field 03
No, retired 04
No, unemployed / Student ..... 05 N
No, disabled ..... 06 N
Homemaker ..... 07 N
Other (SPECIFY:) ..... 97 O
Don't know/Refused 99

35: **Q12**

Were you ever employed in a field related to environmental or occupational health?

=> WORDA
si Q11=01,02

Yes 1
No 2
Don't know/Refused 3

36: **Q12A**

CLARIFY

Why did you not pursue employment in the field?

=> +1

si Q12=1

No full time positions available/ No Job opportunities	01	N
Positions didn't pay enough	02	N
Interested in furthering my education (not necessarily changing job/ careers)	03	N
Not interested in Env/Occupational Health field as a career/interests are in a different direction	04	N
Did, want to continue on to Medical, Dental school; Masters program	05	N
N/A	96	N
RECORD COMMENTS	97	O
Don't know/Refused	99	X

38: **Q13**

READ 1-5

For how many years <have you been / were you> employed in a field related to environmental or occupational health...

=> Q21

si Q12A>0

Less than 1 year	1
1 to 3 years	2
4 to 6 years	3
7 to 10 years	4
Or more than 10 years	5
Don't know/Refused - DO NOT READ	6

40: **Q14**

READ 1-97. UP TO 5 RESPONSES

Thinking about your <current position / most recent position in the field>, which of the following terms best describe your role...

Executive	01	
Management	02	
Academic or Research	03	
Practitioner	04	
Consultant / Own Consultant Business	05	N
Regulator	06	N
Risk Assessment	07	N
Environmental Health Specialist	08	N
Toxicologist	09	N
Educating / Training	10	N
Industrial Hygienist	11	N
Or something else (SPECIFY:)	97	O
Don't know/Refused - DO NOT READ	99	X

41: **Q15**

READ 1-97. UP TO 9 RESPONSES

Which of the following are areas of specialization for your <current position / most recent position in the field>?

Environmental Assessment or Management	01	
Toxicology - Lab Based	02	
Toxicology - Risk Assessment	03	
Occupational or Environmental Medicine	04	
Occupational or Environmental Nursing	05	
Industrial Hygiene	06	
Workplace Safety	07	
General Public Health Protection	08	
Epidemiology	09	N
General Environmental Health / Specialist	10	N
Food Safety	11	N
Research	12	N
Educator/Trainer	13	N
Exposure Assessment	14	N
Waste Management	15	N
Or something else (SPECIFY:)	97	O
Don't know/Refused - DO NOT READ	99	X

43: **Q16**

<Is / Was> your primary employment as an independent or private consultant?

Yes	1
No	2
Don't know/Refused- DO NOT READ	3

45: **Q16A**

READ LIST

By what type of organization <are / were> you employed?

Private Industry	01	
Public Agency	02	
Non-profit/NGO	03	
University / Academic	04	N
Government	05	N
Military	06	N
Consulting	07	N
Self Employed	08	N
Other (SPECIFY:)	97	O
Don't know/Refused- DO NOT READ	99	

46: **Q17**

READ 1-97

Which of the following best describes the industry in which you <are / were> employed?

Construction	01	
Education or Research	02	
Government	03	
Health care	04	
Manufacturing	05	
Nonprofit	06	
Transportation	07	
Utility	08	
Multiple industries	09	
Engineering	10	N
Consulting	11	N
Biotechnology / Technology	12	N
Petroleum	13	N
Waste Management / Industry	14	N
Or some other industry (SPECIFY:)	97	O
Don't know/Refused - DO NOT READ	99	

47: **Q18**

In what state <are / were> you employed? IF NEEDED ASK: Where <are / were> you headquartered or based?

Alaska	AK	
Alabama	AL	
Arkansas	AR	
Arizona	AZ	
California	CA	
Colorado	CO	
Connecticut	CT	
District of Columbia	DC	
Delaware	DE	
Florida	FL	
Georgia	GA	
Hawaii	HI	
Iowa	IA	
Idaho	ID	
Illinois	IL	
Indiana	IN	
Kansas	KS	
Kentucky	KY	
Louisiana	LA	
Massachusetts	MA	
Maryland	MD	
Maine	ME	
Michigan	MI	
Minnesota	MN	
Missouri	MO	
Mississippi	MS	
Montana	MT	
North Carolina	NC	
North Dakota	ND	
Nebraska	NE	
New Hampshire	NH	
New Jersey	NJ	
New Mexico	NM	
Nevada	NV	
New York	NY	
Ohio	OH	
Oklahoma	OK	
Oregon	OR	
Pennsylvania	PA	
Rhode Island	RI	
South Carolina	SC	
South Dakota	SD	
Tennessee	TN	
Texas	TX	
Utah	UT	
Virginia	VA	
Vermont	VT	
Washington	WA	
Wisconsin	WI	
West Virginia	WV	
Wyoming	WY	
Washington DC	94	N
CANADA PROVINCE - RECORD ON NEXT SCREEN	95	
OUT OF COUNTRY RECORD ON NEXT SCREEN	96	
OTHER (SPECIFY:)	97	O
Don't know/Refused	99	

48: **Q18A**

In which Canada province is that?

=> +1
si NOT Q18=95

RECORD COMMENTS ..... 97 O
Don't know 99

49: **Q18B**

Which country is that?

=> +1
si NOT Q18=96

RECORD COMMENTS ..... 97 O
Don't know 99

51: **Q19**

PROBE TO FIT

In your <current position, approximately how many people do / most recent position in the field, approximately how many people did> you supervise including direct and indirect reports?

None 1
1 to 5 2
6 to 20 3
21 to 100 4
More than 100 5
Don't know/Refused 6

53: **Q20**

READ 1-5

Which of the following best represents < your current salary range / your salary range in that position >?

Less than $40,000 1
$40,000 up to $75,000 2
$75,000 up to $100,000 3
$100,000 up to $150,000 4
Or $150,000 or more 5
Don't know/Refused - DO NOT READ 6

55: **Q20A**

<Do you work full or part time / Did you work full or part time in that position >?

Full-time 01
Part- time 02
Other (SPECIFY:) ..... 97 O
Don't know/Refused 99

56: **Q21**

READ 1-5

Thinking back on the experience you had while working toward your UW degree and your experience with your program, compared to your professional peers, how would you rate the training you received in the program? Would you say it was...

=> Q29

si (Q4A=1 AND YEAR<1993) OR (Q4B>0 AND Q4B<1993)

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Don't know - DO NOT READ 6
Refused - DO NOT READ 7

57: **Q22**

PROBE AND CLARIFY

Why do you say that?

=> +1

si Q21=6,7

Good, excellent training/good preparation for my career/I was taught what I needed to know for my career ..... 01 N
Well rounded, broad spectrum education/wide exposure to relevant issues ..... 02 N
Quality education/High standards adhered to ..... 03 N
Instructors were good, knowledgeable, competent, qualified, accessible ..... 04 N
Courses were at a high level, robust, technical, challenging ..... 05 N
Needed more hands on, real life experiences ..... 06 N
Not as relevant to my field as I would have liked/should have more real world application ..... 07 N
Not as challenging as I would have liked/should offer more technical aspects ..... 08 N
RECORD COMMENTS ..... 97 O
Don't know ..... 98 X
Refused ..... 99 X

58: **Q23**

Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each. The first is...

Continue ..... 1 D

59: **Q23A**

série

permutation -> Q23K

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Classroom instruction

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

60: **Q23B**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Research Mentorship

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

61: **Q23C**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Internships or practicum

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

62: **Q23D**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Facilities IF NEEDED: Building, locations, etc.

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

63: **Q23E**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Relevancy to your professional needs

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

64: **Q23F**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Access to cutting-edge instrumentation

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

65: **Q23G**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Access to faculty

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

66: **Q23H**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Opportunity for real world application of coursework

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

67: **Q23I**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Faculty advising and mentorship

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

68: **Q23J**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Preparation for certification

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

69: **Q23K**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Next, I am going to read several different elements of the environmental and occupational health programs and I would like you to rate your degree program on each...)

Level of student funding support

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

70: **Q24**

Now, considering non-technical aspects of the programs, and using the same ratings, how would you rate your program in terms of ...

Continue ..... 1 D

71: **Q24A**

série

permutation -> Q24D

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Now, considering non-technical aspects of the programs, and using the same ratings, how would you rate your program in terms of ...)

Communication skills and training

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

72: **Q24B**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Now, considering non-technical aspects of the programs, and using the same ratings, how would you rate your program in terms of ...)

Teamwork skills and experience

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

73: **Q24C**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Now, considering non-technical aspects of the programs, and using the same ratings, how would you rate your program in terms of ...)

Leadership skills

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

74: **Q24D**

READ ONCE, THEN REREAD AS NEEDED: Would you rate that as...READ 1-5

(Now, considering non-technical aspects of the programs, and using the same ratings, how would you rate your program in terms of ...)

Interactions with students outside of your program area

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Does not apply - DO NOT READ 6
Don't know - DO NOT READ 7
Refused - DO NOT READ 8

75: **Q25**

READ 1-5

How would you describe the social and professional networking opportunities available to students while in your program at UW? Would you say they are...

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Don't know - DO NOT READ 6
Refused - DO NOT READ 7

76: **Q26**

READ 1-5

How would you describe the job and employment placement support available to students in your program at UW?

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Don't know - DO NOT READ 6
Refused - DO NOT READ 7

77: **Q27**

In your graduate program, did you enroll in classes outside your curriculum?

=> Q29
si Q2A=01,99

Yes 1
No 2
Don't know/Refused 3

78: **Q28**

READ 1-97

Which of the following types of coursework outside your curriculum did you consider the most valuable?
IF MORE THAN ONE GIVEN, ASK: Which one is the most valuable?

=> +1
si NOT Q27=1

Foreign language 01
Business 02
Policy or Law 03
Hard sciences IF NEEDED: Chemistry, Biology, Physics, etc 04
Engineering 05
Psychology / Anthropology / Sociology ..... 06 N
Public Administration ..... 07 N
Biostatistics / Research Methods ..... 08 N
Multiple Courses ..... 09 N
General Public Health ..... 10 N
Other sciences ..... 11 N
Nursing ..... 13 N
Toxicology ..... 12 N
Or something else (SPECIFY:) ..... 97 O
None of the above - DO NOT READ 00
Don't know/Refused - DO NOT READ 99

79: **Q29**

Since receiving your degree, have you taken any types of continuing education courses in environmental and occupational health in the past ten years?

=> Q45A1
si NOT Q11=01,02 AND NOT Q12=1

Yes 1
No 2
Don't know/Refused 3

80: **Q30**

READ 1-97. UP TO 5 RESPONSES

Were those courses from...

=> +1

si NOT Q29=1

University of Washington	01	
Other universities	02	
Professional associations	03	
Private vendors	04	
Government / State Agencies	05	N
DOH / Public Health Agency	06	N
Or somewhere else (SPECIFY:)	97	O
Don't know/Refused - DO NOT READ	99	X

81: **Q31**

READ 1-97. PAUSE AFTER EACH. UP TO 4 RESPONSES.

Overall, which of the following types of continuing education courses have you taken through UW Department of Environmental and Occupation Health in the past ten years?

=> Q33

si NOT Q30=01

In person or classroom	01	
Online video	02	
Online interactive	03	
Seminar	04	N
Conference	05	N
Or something else (SPECIFY:)	97	O
Don't know/Refused - DO NOT READ	99	X

82: **Q32A**

READ 1-5

Overall, how would you rate the quality of in-person or classroom courses from UW DEOHS? Would you say...

=> +1

si NOT Q31=01

Excellent	1
Very good	2
Good	3
Fair	4
Or poor	5
Don't know - DO NOT READ	6
Refused - DO NOT READ	7

83: **Q32B**

READ 1-5

Overall, how would you rate the quality of online video courses from UW DEOHS? Would you say...

=> +1
si NOT Q31=02

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Don't know - DO NOT READ 6
Refused - DO NOT READ 7

84: **Q32C**

READ 1-5

Overall, how would you rate the quality of online interactive courses from UW DEOHS? Would you say...

=> +1
si NOT Q31=03

Excellent 1
Very good 2
Good 3
Fair 4
Or poor 5
Don't know - DO NOT READ 6
Refused - DO NOT READ 7

85: **Q33**

READ 1-4

How likely is it that you will consider taking continuing education courses from UW Department of Environmental and Occupational Health Sciences in the next five years?

Very likely 1
Somewhat likely 2
Not very likely 3
Or not at all likely 4
Don't know/Refused - DO NOT READ 5

86: **Q34**

READ 1-97. UP TO 4 RESPONSES

What form of continuing education courses will you be most likely to take from the Environmental and Occupational Health Sciences in the next five years?

=> +1
si NOT Q33=1-2

On campus 01
Online 02
At professional development courses or conferences 03
Or somewhere else (SPECIFY:) ..... 97 O
Don't know/Refused - DO NOT READ ..... 99 X

87: **Q35**

Does your practice encompass global environmental or occupational health and safety?

Yes 1
No 2
Don't know/Refused 3

88: **Q35A**

CLARIFY

Please briefly describe the nature of your global work.

=> +1
si NOT Q35=1

Occupational Health and Safety concerns-working conditions, exposure to hazards in the workplace ..... 01 N
Climate change issues and concerns ..... 02 N
Environmental clean up -hazardous materials, pollution, water quality ..... 03 N
Public Health issues and concerns- disease, epidemiology, ... 04 N
Education - seminars, classes ..... 05 N
Provide consulting, technical assistance ..... 06 N
N/A ..... 95 N
Non specific about nature of work -mention of countries worked in ... 96 N
RECORD COMMENTS ..... 97 O
Don't know/Refused ..... 99 X

89: **Q36**

PROBE AND CLARIFY

What could the UW Environmental and Occupational Health program do to better prepare students to work globally?

=> +1
si NOT Q35=1

Offer more classes or coursework on related global issues/ Global Health Program/Education on other places around the world/other countries ..... 01 N
More hands on, real world opportunities / fund actual experiences for students ..... 02 N
Offer internships, practicums, exchange/international opportunities, placement assistance ..... 03 N
Bring in speakers to talk about their global experiences ..... 04 N
Integrate with Public Health Issues ..... 05 N
Help students prepare for actual career/ help find career and jobs ..... 06 N
Wider range of guest lecturers ..... 07 N
More faculty available who have more experiences ..... 08 N
N/A ..... 96 N
RECORD COMMENTS ..... 97 O
Don't know/Refused ..... 99 X

90: **Q37**

READ 1-97. PAUSE AFTER EACH. UP TO 6 RESPONSES

Which of the following areas of study should be incorporated in academic training for future environmental or occupational health issues?

Economics	01	
Use of new technologies	02	
Management	03	
Effective training techniques	04	
Cultural competency	05	
Communication / Leadership	06	N
Practical appliances / Real world experiences	07	N
Business / Policy	08	N
Or something else (SPECIFY:)	97	O
Don't know/Refused - DO NOT READ	99	X

91: **Q38**

To what extent does practice in your field encompass a combination of occupational health and the broader environment? Please use a scale from 1 to 5 where 1 means not at all, these are two distinct areas of practice and 5 means completely, they are totally combined.

Not at all	1
2	2
3	3
4	4
Completely totally combined	5
Don't know/Refused- DO NOT READ	6

92: **Q39**

Should academic training maintain the distinction between these two areas or integrate them completely? Please use a scale from 1 to 5 where 1 means maintain the distinction between the two areas and 5 means integrate them completely

Maintain the distinction	1
2	2
3	3
4	4
Integrate them completely	5
Don't know/Refused- DO NOT READ	6

93: **Q40**

READ 1-5

How would you describe the impact you feel you have had on the environment, worker and general population health & safety?

Extremely positive impact	1
Positive impact	2
Minor impact	3
Or no impact	4
Don't know/Refused - DO NOT READ	5

94: **Q41**

PROBE AND CLARIFY

Aside from internal politics or personal issues including budget issues, what are the most significant challenges you are facing in your occupation today?

None/Only politics, personal or budget issues	00	N
Keeping up with changes, advancements in technology	01	N
Safety issues, concerns - new regulations, guidelines, standards – compliance is a challenge	02	N
Training - getting and keeping everyone trained and up to date	03	N
Workload issues - not enough people to get the work done/heavy workloads	04	N
Lack of trained people to do the work/difficult to find, hire qualified people	05	N
Slow Economy/Lack of job opportunities, fewer job openings, loss of positions in the industry	06	N
Burnout, lack of, loss of motivation on the part of employees	07	N
More acknowledgement of employees value, contribution, effort – better management	08	N
Cultural, language, communications issues between employees	09	N
Lack of education, awareness among the public for health, environment, safety issues	10	N
N/A - No longer working in that field, retired	96	N
RECORD COMMENTS	97	O
Don't know/Refused	99	X

95: **Q42**

READ 1-3

What employment or staffing expectations in the occupational and environmental health field does your organization have for the next five years? Will you...

Maintain staff levels	1
Increase staff	2
Or decrease staff	3
Don't know/Refused	4

96: **Q43**

PROBE AND CLARIFY

How should the degree program you completed change or adapt to better fulfill the future needs of the field of environmental and occupational health?

More about employees health/wellness/disease management ..... 01 N
More technology/technical skills/updated information on technology . 02 N
More hands on involvement ..... 03 N
More real world experiences ..... 04 N
Understanding of government regulations/laws ..... 05 N
More effort to provide a global perspective..... 06 N
Focus on a green economy ..... 07 N
Internship/externship programs ..... 08 N
Lectures/presentations/speakers ..... 09 N
Safety Issues/workplace safety ..... 10 N
Add job placement network/need work in our field ..... 11 N
Keep current on events that relate to our field/specialized fields ..... 12 N
Training/mentoring for students ..... 13 N
Incorporate management and business aspects into the curriculum ..... 14 N
Expand risk assessment studies ..... 15 N
Communication skills / leadership..... 16 N
Integration between environmental and occupational health and safety17 N
Collaboration with new industry/communities..... 18 N
N/A ..... 94 N
Been out of school for so long/Can't recall..... 95 N
Good/No change needed..... 96 N
RECORD COMMENTS ..... 97 O
Don't know/Refused ..... 99 X

97: **Q45A1**

The UW School of Nursing, like many other schools across the country, has developed the Doctor of Nursing Practice (DNP) degree. The DNP is intended for advanced practice nursing, including Occupational Health Nursing, and includes among its goals, providing advanced nursing care, creating, managing and evaluating innovative programs, critiquing and translating science to practice and policies, etc.

=> Q44
si NOT TYPE=2

Continue ..... 1 D

98: **Q45A2**

The DNP program of study can be completed in three years, involves a greater emphasis on research training, and concludes with a 1-year capstone project. Please indicate if you agree or disagree with each of the following statements about the new DNP degree. Please use a 5 -point scale with 1 meaning strongly disagree and 5 meaning strongly agree. The first statement is...

Continue ..... 1 D

99: **Q45A**

série

permutation -> Q45F

AS NEEDED: Would you say 1, strongly disagree, 5 strongly agree or some number in between?

(The DNP program of study can be completed in three years, involves a greater emphasis on research training, and concludes with a 1-year capstone project. Please indicate if you agree or disagree with each of the following statements...)

The DNP degree will enhance the training that OHNs need to succeed in professional practice

Strongly disagree 1
2 2
3 3
4 4
Strongly agree 5
Don't know 6
Refused 7

100: **Q45B**

AS NEEDED: Would you say 1, strongly disagree, 5 strongly agree or some number in between?

(The DNP program of study can be completed in three years, involves a greater emphasis on research training, and concludes with a 1-year capstone project. Please indicate if you agree or disagree with each of the following statements...)

The DNP degree is not an added benefit for OHNs in terms of professional practice

Strongly disagree 1
2 2
3 3
4 4
Strongly agree 5
Don't know 6
Refused 7

101: **Q45C**

AS NEEDED: Would you say 1, strongly disagree, 5 strongly agree or some number in between?

(The DNP program of study can be completed in three years, involves a greater emphasis on research training, and concludes with a 1-year capstone project. Please indicate if you agree or disagree with each of the following statements...)

The organization I work for would not benefit from a person with DNP training and skills

Strongly disagree 1
2 2
3 3
4 4
Strongly agree 5
Don't know 6
Refused 7

102: **Q45D**

AS NEEDED: Would you say 1, strongly disagree, 5 strongly agree or some number in between?

(The DNP program of study can be completed in three years, involves a greater emphasis on research training, and concludes with a 1-year capstone project. Please indicate if you agree or disagree with each of the following statements...)

The organization I work for would hire someone with DNP-level skills and qualifications

Strongly disagree 1
2 2
3 3
4 4
Strongly agree 5
Don't know 6
Refused 7

103: **Q45E**

AS NEEDED: Would you say 1, strongly disagree, 5 strongly agree or some number in between?

(The DNP program of study can be completed in three years, involves a greater emphasis on research training, and concludes with a 1-year capstone project. Please indicate if you agree or disagree with each of the following statements...)

The organization I work for would hire a DNP-prepared nurse for positions currently filled by MN- or MS-prepared nurses

Strongly disagree 1
2 2
3 3
4 4
Strongly agree 5
Don't know 6
Refused 7

104: **Q45F**

AS NEEDED: Would you say 1, strongly disagree, 5 strongly agree or some number in between?

(The DNP program of study can be completed in three years, involves a greater emphasis on research training, and concludes with a 1-year capstone project. Please indicate if you agree or disagree with each of the following statements...)

If given a choice, I would have pursued the DNP degree over the MN or MS degree

Strongly disagree 1
2 2
3 3
4 4
Strongly agree 5
Don't know 6
Refused 7

105: **Q44**

We are considering future follow-up surveys of graduates from other Environmental and Occupational Health programs that have responsibility for safety, health and environmental management and EH&S personnel hiring. Can you recommend anyone to help us with this research?

=> Q46
si NOT Q11=01,02 AND NOT Q12=1

Yes 1
No 2
Don't know/Refused 3

106: **Q44A**

Please list the name, title, phone number and email address (if you have them) of other individuals within your organization who could address future needs in the field, and staffing requirements.
RECORD NAME:

=> Q46
si NOT Q44=1

RECORD NAME ..... 1 O
Refused 2

107: **Q44B**

What is <q44a>'s title?
RECORD TITLE:

=> Q46
si Q44A=2

RECORD TITLE ..... 1 O
Don't know 2
Refused 3

108: **Q44C**

And what is <q44a>'s phone number?
RECORD PHONE NUMBER ..... 1 O
Don't know 2
Refused 3

109: **Q44D**

And what is <q44a>'s email?
RECORD EMAIL ..... 1 O
Don't know 2
Refused 3

110: **Q44A1**

Is there anyone else who could address future needs in the field and staffing requirements?
IF YES, ASK FOR THAT PERSON'S NAME
RECORD NAME:
RECORD NAME ..... 1 O
No/No one else 2
Refused 3

111: **Q44B1**

What is <q44a1>'s title?
RECORD TITLE:

=> Q46
si Q44A1=2,3

RECORD TITLE ..... 1 O
Don't know 2
Refused 3

112: **Q44C1**

And what is <q44a1>'s phone number?
RECORD PHONE NUMBER ..... 1 O
Don't know 2
Refused 3

113: **Q44D1**

And what is <q44a1>'s email?
RECORD EMAIL ..... 1 O
Don't know 2
Refused 3

114: **Q46**

The University of Washington has asked that we confirm your alumni information. The records show your address to be: <addr> <city>, <state>, <zip>. Is this the correct information?

=> +1
si WADDR=2

Yes, all the information is correct 1
No, some/all information wrong 2
Refused 3

116: **Q46A**

<What is your correct address? / The University of Washington has asked that we confirm your alumni information. What is your address? >
READ BACK TO MAKE SURE IT IS CORRECT
RECORD ADDRESS, ON NEXT SCREENS RECORD CITY, (STATE)/(COUNTRY), ZIP

=> Q47
si Q46=1,3

RECORD ADDRESS ..... 1 O
Refused 2

117: **Q46B**

RECORD CITY

=> Q47
si Q46A=2

RECORD CITY ..... 1 O
Refused 2

118: **Q46C**

READ BACK TO MAKE SURE IT IS CORRECT
RECORD STATE, PROVINCE, OR COUNTRY
RECORD STATE, PROVINCE, OR COUNTRY ..... 1 O
Refused 2

119: **Q46D**

RECORD ZIP, POSTAL CODE, OR OTHER ADDRESS INFO
RECORD ZIP, POSTAL CODE, OR OTHER ADDRESS INFO ..... 1 O
Refused 2

120: **Q47**

And what is your email address?
READ BACK TO MAKE SURE IT IS CORRECT
RECORD EMAIL ADDRESS ..... 1 O
Refused 2

121: **GENDR**

DO NOT ASK!
RECORD GENDER
Male 1
Female 2

C08116 UW Alumni

Final Sample Disposition

	Total	Department of Environmental and Occupational Health Sciences	Occupational Health Nursing	Health Services Research Training Program	
Total sample received from UW	1,103	947	152	4	
Address and phone #	866	756	109	1	
Address and no phone #	178	161	17	0	
No address, phone # only	1	0	1	0	
No address, no phone, email	7	2	2	3	
No address, no phone, no email	3	0	3	0	x
Foreign sample, with address	33	28	5	0	
Do not use sample per client	15	0	15	0	x
Usable Sample	1,085	947	134	4	
Letters sent	211	189	22	0	
Letters returned, no forwarding address	64	41	23	0	x
Letters returned, no forwarding address and no telephone number	18	12	6	0	
Total sample with phone numbers	867	756	110	1	
Web survey completes before telephone survey began	**32**	**27**	**4**	**1**	
Web survey completes before telephone survey began from sample with telephone numbers	**29**	**24**	**4**	**1**	
Sample imported into telephone survey	839	732	107	0	
Emails sent	7	2	2	3	
No response from e-mail	3	1	1	1	ur
Total phone completes	**271**	**240**	**31**	**0**	
Web survey completes after telephone survey began from sample with telephone numbers	**62**	**52**	**6**	**0**	
refusal/company policy no surveys allowed/terminated survey	72	63	9	0	r
wrong #, disconnect, residential	236	189	47	0	x
Language barrier	2	2	0	0	x
Still callable	162	150	12	0	ur
Not qualified misc./gone for remainder	24	24	0	0	x
Duplicate telephone number	1	1	0	0	x
Blocked telephone number	2	1	1	0	x
Cell phone	1	1	0	0	x
Did not graduate from program	6	5	1	0	x
Total web completes	**145**	**130**	**12**	**3**	
TOTAL completes	**416**	**370**	**43**	**3**	

Completes	416	**370**	**43**	3	
Disqualified/unable to determine if qualified	354	264	90	0	x

still callable/unreachable; no answer, blocked #	165	151	13	1	ur
Refused survey	72	63	9	0	r
Total Sample	1,103	947	152	4	

COMPLETION RATE (completes/ (completes + unreachable + refusals)	63.71%	63.36%	66.15%	75.00%

u = unreachable, r = refusal, x = disqualified/unable to determine if qualified